

THE NECESSARY TRANSITION

The Journey towards the
Sustainable Enterprise Economy

Life on Earth for humanity and our ecosystems is at a point of great change. There is much to be learnt about previous great disruptions. The key words are *adaptation* and *transformation*. Most international companies operate across multiple social and environmental geographies, so they know this intellectual and practical landscape. And for many governments the challenges of social and environmental justice are also paramount – not least because equitable societies are best for business, and best for human well-being.

The Necessary Transition addresses the many transitions taking place around the world: from high- to low-carbon economies, from gross inequality to egalitarianism, from massive human rights abuses to socially just societies, and from high corruption to societies with high social cohesion and integrity.

The book brings together leading international researchers and practitioners to share their knowledge and expertise, and offers answers to many of the pressing questions that must be addressed in the journey towards a sustainable enterprise economy – an absolutely necessary transition for humanity.

The key question is: "Is a transition to a sustainable future possible within the logic of conventional capitalism and 20th-century models of development?" This book provides radical perspectives from varying entry points and will be essential reading for academics and practitioners interested in how we plan, speed and scale such necessary transitions.



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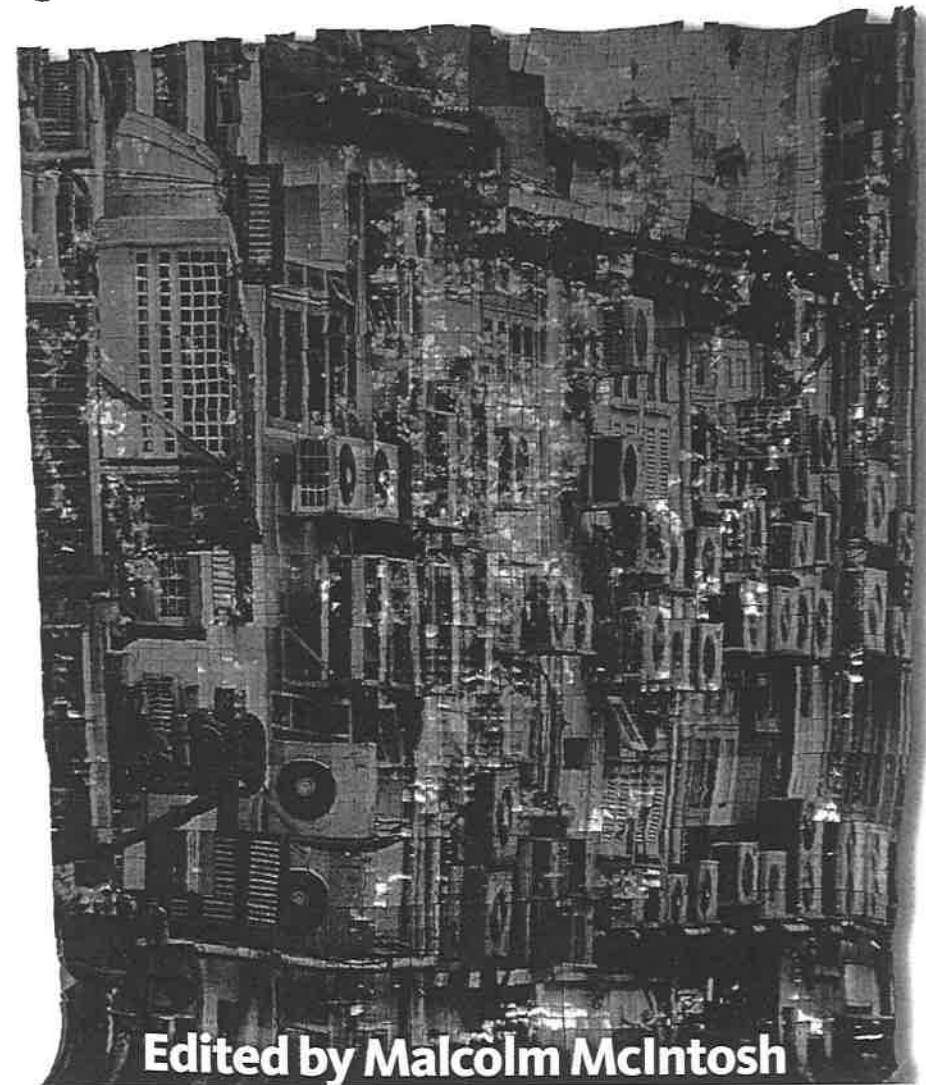
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McIntosh



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Edited by Malcolm McIntosh

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'What they undertook to do
They brought to pass;
All things hang like a drop of dew
Upon a blade of grass.'

*Gratitude to the
Unknown Instructors*
William Butler Yeats

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Foreword

Tim Smit

Eden Project, Cornwall, UK

There is an irony that the lexicon of sustainability and climate change should contain so many words loathed by the vast majority of people on Earth. 'Sustainability' itself, with its near mystical allusion to a body of knowledge that would enable us to both physically and spiritually occupy the planet with barely a trace of our footprint, serves as a red rag to a bull to many people. First for its perceived political bias and, second, for its arrogance! 'Biodiversity', which could just as easily be described as 'variety of life', is a word apparently not understood by 85% of visitors to London's Natural History Museum in 2012. 'Climate' versus 'weather' is another semantic nest of vipers, and then you come to the big one, the champion, the killer. The most hated word in our dictionary is 'change'. Yet we stubbornly hang on to it like a mantra. Be the change you want to be, is an invitation to self-loathing. Why?

We hate change ... and transformation is merely a stalking horse for change, like efficiency is for job cuts. The greatest problem is that there resides in our bosom a fairy tale we cannot give up—that somewhere there is a silver bullet, a cure all. Yet ... we all know that change, in the way we mean it, is slow in human, at least in present day 'I want it now' terms but, like a sapling planted in the garden, one day you suddenly notice that the little wispy trunk has girth and vigour and has become a tree.

We love doom and gloom. Our desire to save humanity from itself motivates us, unsullied by the frantic desire for distraction of the consumer society, our game is change, not fashion, but who is listening? Oh how we Cassandras shiver in excitement at the drought, the flood, the big freeze and thaw, the earthquake, tsunami and the hurricane. It makes us feel alive, threatened and vital. Our dearest wish is to give witness either to The End of Days or the dawning of a New Enlightenment. We, like those who cast doubt on us, need to be mindful of the Jon Stewart joke, 'Don't give me facts, I want the truth'. So ... what do we mean by 'transition' (a word, incidentally, that I love), and could it move any faster?

I have recently spent some time in China and while the naïve observations of a newcomer to a culture shouldn't carry much weight in a book of this substance, I was absolutely staggered by what I was being told. First, the meeting of the Politburo in November 2012 agreed to have the word 'sustainability' inserted into the Chinese Constitution—one of the first countries in the world to do so. I was told that the West believed China's GDP rates at its peril, with figures of annual growth of c. 12% until recently (8% at the time of writing), yet experts there say up to 4% of that represents a saved-up cost of medical care caused by environmental degradation. They told me that over the next five years the cultural narrative of China will have a story that revisits the Taoist ideal—China and its people living with the grain of nature. Finally, they told me how they were shocked at the short-sightedness of the West who used the environmental impact of China and India as an excuse for them to do nothing because their efforts would be but a blip in the ocean. They could not believe that the West couldn't see the intelligence of the Chinese and the Indians, and were not aware that the real revolution coming over the horizon at speed was to do with sustainable development in its most literal form. I may be blind, but I believe it. I was impressed by their desire to listen and to learn about what sustainable development might mean to them.

The transition to a new relationship between people and planet is underway all over the world, whether it is recognised or not. Governments are edging towards measuring wellbeing alongside economics, business knows that it must report on more than profits, and civil society—individuals globally—is maintaining pressure on all institutions to be more transparent and accountable. This is as true in Cairo and Beijing as it is in New York and London.

As a number of the authors in this brilliant, wide-ranging book note, humanity is at a turning point. For the entrepreneurs and creative thinkers among us this is a moment of great excitement and opportunity.

The evidence is that the climate is changing rapidly. Coupled to this are very serious issues of resource depletion, population growth, urbanisation, geopolitical destabilisation, consumerism and global inequity. We, the people, have been rubbish at giving politicians and business the signals they need to be brave; but look how far we have come in a short time when President Obama at his public inauguration on 21 January 2013 made addressing climate change a pillar of his presidency for the next four years.

Social media has given those of us with the technology the opportunity to find out what is going on and, as Paul Hawken has noted in his book *Blessed Unrest*, there are now over a million non-governmental organisations and pressure groups around the world, with no single leader. He makes a fabulous analogy that they act like antibiotics to a fevered body politic and environmental system. This is hugely exciting. For us to really create transformation we need to understand the power of story telling and the need to make our narrative feel personal, to tell stories where people are made not to feel powerless in the face of problems too big even to grasp, but powerful in the knowledge that, by getting together with others, attitudes and

actions can be changed. We must be smart, we must be humble, we must actively build the new institutions and encourage the new economy.

I have been privileged to see a number of examples of transformation—Jack Sim and his World Toilet Organisation (WTO!), the Aravinda Eye Hospital, the Barefoot College in Rajasthan, the Grameen Bank, and there are thousands more. They all have something in common. They have created vast networks of people, culturally glued together by a story that makes sense to them. Jack Sim realised that poor people wouldn't buy a cheap toilet for health reasons, but they would when shamed at the disgrace they brought on their family by making family members defecate in public. Once purchased, they give the reason for buying as health! Grameen is about collective responsibility of small groups to repay microcredit; it works by peer group policing. Barefoot College trains Haridjan grandmothers to become solar and water engineers, giving them a valued trade and repositioning the wider view of women and caste, not to mention providing solar light for youngsters to take lessons at night after a day's work in the fields. The Aravinda Eye Hospital charges the rich to provide operations for the poor. And so on. If you want to understand behaviour change look no further than Aesop's Fables, don't look at World Bank or UN guidelines.

The philosopher Alain de Botton once wrote something along the lines of: from the dawning of mankind we have been in awe of nature, it held sway over life and death, then suddenly in the 1700s we fell in awe of ourselves and our magic to transform materials to the point where we began to look at nature as something washed up on the shores of our existence to be pitied and cared for as an act of charity. I do him a disservice in the paraphrasing, but the point is a good one. We need to fall in awe of nature once more.

Every chapter of this important book screams at us 'we must learn and adapt', it must be rapid for it is the necessary transition. Humans are wonderfully, fantastically successful; we have proved ourselves capable of solving many problems, our feats are awesome for a species that began on the savannahs, hunting in packs. There are now billions of us and the danger of our belief in our inventiveness may lull us into making a terrible mistake. It is the mistake of 'they'. 'They' will fix it, 'they' must do it. Ask ourselves, for a moment, who is 'they'? If not us, then who? I delight in the idea that, in an act of hubris, we, humankind, decided to call ourselves *Homo sapiens sapiens* (not just the wise hominid, but the wise wise hominid). If we fry to death we will have deserved it but, on the other hand, isn't it a pleasure to be living at a time when we can actually prove we are worthy of the name we gave ourselves?

If ever you want a justification for bringing smart people, vain yet humble people, fizzing, laughing hopeful people together to share their thoughts on the search for solutions to many different issues, you will find it here. For beating like a heart through this book is the intensity of hope that gives this book a reason for being. To encourage, incite and draw a picture of a future possible. Doom may make its presence felt like the cowboy in the black hat, but throughout you can hear the galloping hooves of the man in the white hat getting closer with every passing page.

Dame Barbara Ward once memorably said, 'We all have a duty to Hope'. By this she meant a positive, driven, muscular, vigorous, adaptive, primal howling-at-the-moon kind of duty.

The many authors of this book have, over the years, met at various venues around the world and have one thing in common—the book's co-ordinator and editor, Malcolm McIntosh, whose insight and dogged insistence on staying optimistic have long been an inspiration to me. They are each at the top of their professions and wouldn't normally work with each other, but have chosen to do so because professionally, and personally, they think it is important. Here are business strategists, climate scientists, social activists, educators, historians, public policy experts and business leaders all banging on about the same things—the absolute necessity to face the truth about the relationship between people and planet—and to tell it like it could be.

Tim Smit KBE is co-founder of the Eden Project.

Acknowledgements

This book, and the accompanying conference, The Necessary Transition 2012, held in Brisbane on 26–28 September 2012,¹ would not have been possible without a lengthy engagement with colleagues around the world who work in a global space which transcends national, ethnic and other boundaries to think hard about issues, risks, ideas, challenges and opportunities that present themselves to the world. So, to my fellow conspirators for social change on a human scale, thank you.

In particular I would like to thank all those who work at two places that every time I visit I am revitalised by their practical example, by energetic engagement, by their paradoxes, contradictions and challenges. These are learning places with the right values at their heart—the Eden Project in Cornwall, England, and the Sustainability Institute near Stellenbosch, South Africa. Like us all, neither are perfect, but both are places that shine a light on possible futures and the rivers we must cross.

I would also like to thank my colleagues at Griffith University in Queensland, Australia, for their help, loyalty and support in making many things, including this book and the conference, happen in a timely and well-organised manner.

To name a few people without whom the last few years and decades would have been less fruitful and less inspiring: Karen Brindley and all my colleagues at Griffith University; Mark Swilling, Eve Anneke and everyone at the Sustainability Institute; Caroline Digby, Tim Smit and everyone at the Eden Project; and John Stuart and Dean Bargh at Greenleaf Publishing.

Malcolm McIntosh, Brisbane,
January 2013

¹ www.griffith.edu.au/conference/necessary-transition.

Introduction

Malcolm McIntosh

Asia Pacific Centre for Sustainable Enterprise, Griffith University, Queensland, Australia

The idea

That we are in the midst of a major transition in the history of humanity there is no doubt, but you can choose your transition point. For some, it is the cataclysmic effect of climate change, for others it is the depletion of natural resources, or the collapse of the international banking and finance system, or population and demographics, or the growing instability caused by nuclear weapons acquisition. For others, liberation and positive change is to be found in the growth of social media and the porosity of nation-state boundaries which have helped foment discussion in China, helped organise the Arab Spring, and given the Occupy movement life and made it global. So this transition point is also a moment to take stock of humanity's success and to celebrate our diversity, creativity, homogeneity, problem-solving and enterprising nature.

This book is about the transition that is necessary in order to move locally and globally to a socially-just sustainable enterprise economy. Life on Earth for humanity and our ecosystems is at a point of great change, and there is much to be learnt about previous great disruptions. The key words are 'learning', 'adaptation' and 'transformation'.

But if there is one thing that this book wishes to do it is to bring to the fore the fact that there are many transitions taking place—from high- to low-carbon economies; from gross inequality to egalitarianism; from massive human rights abuses to socially-just societies; and from high corruption to societies with high social cohesion and integrity. Most international companies operate across multiple social and environmental geographies so they have a grasp of this intellectual and practical landscape, and for many governments the challenges of social and

environmental justice are also paramount, not least because equitable societies are best for business, and best for human wellbeing.

In bringing together experts from many different fields this book covers the necessary transition from many angles, but it also presents a problem in current knowledge development. The siloed nature of intellectual life, most particularly in our universities, means that it is rare that thought leadership crosses boundaries; but in this book we have worked in the space which the High-Level Group Report advising the UN Secretary-General for the Rio+20 Earth Summit called “a new political economy” for sustainable development’ (UN Secretary-General’s

It is November 2012 and the new Chinese leadership team of seven men are paraded for the entire world to see in a heavily choreographed show of power, prestige, masculinity and assurance. We know that they will probably be in power in 2022. Headed by Xi Jinping, the new Secretary-General of the Chinese Communist Party, the seven dark-suited men are standing in a line. The audience is composed mostly of men and they are clapping in unison. For many, this is ‘this century’—a world run by men over 50 in dark suits, members of the world’s largest and most powerful organisation, the Chinese Communist Party, in charge of the world’s largest totalitarian government, controlling the world’s greatest agglomeration of natural resources and people, and many of the largest companies operating within the capitalist system. If you don’t understand China, economics and sustainability you don’t understand the 21st century.

Just a decade into the 21st century, it is so commonplace it is hardly worth mentioning that these events are unfolding on the BBC World News live from Beijing, apparently several worlds away if you are not there now, but in reality very much here and now.

Two days prior to this event in Beijing with the seven wise men of China, the world watched the election of ‘the world’s most powerful man’: the US President, Barack Obama in November 2012. He will be in power until 2016, when this book of essays will still be relevant. In his acceptance speech President Obama twice made reference to the USA being the most powerful military nation the world has ever seen: he was obliquely referring to the fact that China launched its first aircraft carrier in 2012. And so the scene is set for the transition of economic and military power to the Asia Pacific region, with the USA remaining the pre-eminent global military power. But this is only one of many transitions that are taking place around the world and all of them are taking place under the shadow of humanity’s triumphant point of destiny, by which we mean that humans have so shaped the world that the bipedal ape now has to decide what to do with its own future. We are in control, or are we?

High-Level Panel on Global Sustainability 2012: 12) because it is at the juncture of politics, economics and the environment that real understandings of sustainable development can be found. So here in this book are climate change scientists, political activists, social entrepreneurs, business leaders and educators. Political economy was founded in moral philosophy going back to Adam Smith, Karl Marx, Max Weber, Joseph Schumpeter, John Maynard Keynes and Karl Polanyi. Through combining bodies of knowledge and de-atomising intellectual compartmentalisation we will find the solutions to current world problems and face the challenges and opportunities of ‘the necessary transition’.

The transition we are necessarily talking about means no less than an irreversible shift to a new way of living on Earth (Sara Parkin).

This book, and ‘the necessary transition’, is concerned with those decisions and how we decide, if we are capable of deciding. In no way is this a nihilistic position; it is a statement that reflects the fact that, on reflection, there is much we can know and do, but there is also much that we do not know and can have no idea about. We are at the will of our own ability to adapt, to be flexible and to joyously learn day-by-day what it is to be human. The purpose of life is to strive, and to meditate on what has been, what is, and what could be. ‘The necessary transition’ posits that a transition is necessary, is already happening, and that it should happen. Hope is a central tenet of what it means to be human. And we keep moving along, on and on, on the road again. We cannot stop. You cannot step into the same river twice, you cannot forever live in the past, and last night’s sunset will never be repeated. Hope springs eternal.

This set of essays is concerned with transition from a grand perspective, with a grand narrative in mind, with social and environmental justice being the goal. You, however, as the reader, may not recognise the authors’ starting points or may be in some other place while reading this book. Where you are, here and now, is important—even though by the end of the page it may have changed and the world around you may have changed as well. It is not a conceit or a distraction to ask the reader: Have you eaten today? Do you have a roof over your head? Do you find it easy to read these words written in English? Have you just taken a bath or are about to go to sleep? And do you have a loved one snuggled up to you as you think about these questions? These things are important because it is difficult to put into any perspective the idea of a necessary transition of what might be if you are simply concerned with your next meal or the fate of your daughter who is out on the town and late back home tonight.

So where is your head? Is it important to think about the here and now, or next week, next year, the next ten years, the next 100 years or the next millennium? I ask because it matters to the writers in this book for whom the view from the window ranges from the immediate to the end of the century and beyond. This can be disconcerting. Are you more interested in watching the five-year-olds starting school, as described in Eve Anneck’s essay on the Sustainability Institute and primary school in South Africa, or perhaps glorying in the copper roof of the Eden Project’s

new education centre in Cornwall, England, knowing that it has been tracked all the way from a mine in the USA to the UK?

But your interest might lie in looking back over millennia in order to look forward to the end of this century. In two chapters, Mark Swilling and Richard Cassels ask the question: given 'the necessary transition' and the hypothesis that humanity may have come to a fork in the road, what can be learnt from the past that might be useful for adapting to the future? As Mark Swilling says: 'Many writers cannot resist drumming up support from history to conjure images of the future to help influence the decisions taken today', but how helpful is this knowledge given that the situation today is different from all past turning points in human history? Or has that always been true for these moments in history? In this volume, Swilling unravels the debates: is this the fourth wave of revolution in human history, the sixth wave of change since industrialisation, and do Kondratiev's waves of prosperity make sense in a world that is subject to climate change scenarios? Or can we find a technical and social fix through the third wave of 'lateral power' distribution and redistribution of energy supplies and social connectivity? Or is this, as Swilling argues in his chapter, one of the many attempts to re-imagine a post-crisis landscape on terms that favour a relatively narrow set of elite actors?

Transitions can be peaceful, revolutionary and, sometimes, violent. Like an earthquake they can be expected, but not determined in time, and be very destructive, or, like a river flowing through sandstone, there can be a process of evolution. Peter Senge has argued elsewhere that we are in the midst of a 'necessary revolution' (Senge 2008), but some people in some political cultures see everything as dramatic, which may be the politics of affluence and inertia and a desire to stir up revolutionary and, perhaps, old testament images of theatrical turbulence, people on the streets, tyrants overthrown and new orders put in place. Paul Hawken's (2008) revolution comes from the streets in the form of the 'blessed unrest' of non-government and non-profit organisations. Both ideas ring true in this volume but from different places and perspectives. This is necessarily so because, as Karl Marx said, we all have our own histories and we all make our own futures. The multi-level perspectives approach to transition is based on a particular analysis of regime change and is, to some extent, useful for this diverse collection of essays on ideas of transition, but they (the chapters) do not fit neatly into any collective framework. Indeed, the only central theses are nods to learning, adaptation and change.

We may all be on the road together and the final utopia may be similar, but not the same, for two reasons. First, where we have come from and what we have been through has left a legacy of learning and, perhaps, some scars that can't be so easily removed by the idea of a single grand narrative, however persuasive it may be argued. We are, are we not, creatures of nature *and* nurture, of rationality *and* emotion, of the swamp *and* the mountain top, reptilian *and* transcendent?

The German apparel manufacturers described by Stefan Schaltegger and Erik Hansen in this volume deal at an everyday level with issues that are far removed from the extraction and delivery of coal, the black stuff, an elemental fossil fuel, to

China described in another piece in this book by Rio Tinto's Fiona Nicholls. And yet the clothing company and the energy provider are intimately connected through a natural web of life and through social systems that connect investments, energy use, sales and customers, consumers and governments. And yet both are apparently concerned with 'the necessary transition' as both authors were caught up by the idea of, and both speak eloquently about, the need to face up to one of the fundamental issues of the transition, namely adapting to and dealing with anthropogenically-induced climate change.

This set of essays is written by Germans, Americans, Japanese, Indians, Africans, English, Irish and Australians, all of whom came at the topic from different angles. At one point in a conference in Brisbane, Australia, that was held to share some of these diverse perspectives, on the stage were seven of the book's authors: several political and thought leader activists, a climate change scientist, a coal miner, a public policy analyst and activist, an educator and a politician. It is no small point that they were all there to sing different hymns from the same hymn sheet and that, rather than take up arms, they were present to bear witness to ideas and discussion.

The evolutionary psychologist Steven Pinker has said that, in the last few hundred years, we have learnt relatively rapidly to be peaceful.¹ The moral philosopher Jonathan Glover (2001) says the last century, the 20th, was the bloodiest. They are both correct—Pinker because the shape of our brains and our behaviour has changed for the better; and Glover because the scale of the last century's killing was on an unprecedented scale through the use of technology for and of war.

So is 'the necessary transition' inevitable or driven by our compulsion to change, for so-called progress? Almost all the authors in this book agree that this time it is different: that humanity is staring at its own history in the mirror and, if it is honest, knows that it is time for a rethink, for more than a face lift. It is time to take the road less travelled with all its uncertainties, challenges, opportunities and risks.

For the historians, such as Swilling and Cassels, the necessity for change is now; but, as history mostly tells us, change takes time. Some civilizations have come and gone in a few years, for others it has taken a generation or two. This time it is humanity itself that is up for change because of the nature of the global challenges now facing us.

For Kyoko Fukukawa and Sunil Manghani, even though the necessity for the transition may have come about because of the extent of the damage caused by a model of industrial capitalism and technological development that originated in the West (specifically, for various reasons, in the UK), this is no reason for Western philosophers to be so ignorant of 'the East' and, particularly, of ancient Asian cultures such as are offered by Japanese, Indian and Chinese history.

¹ 'At home: Steven Pinker', www.ft.com/intl/cms/s/2/a96b18bc-3ec6-11e2-87bc-00144feabd0.html#axzz2HuAZX8k9, accessed 13 January 2013.

A similar idea is presented by two very different contributions by Mark Swilling and Eve Annecke that the transition is very different depending on history, culture, affluence, politics, age and baggage. They write from post-apartheid South Africa where the transition to a peaceful, egalitarian society is taking a while longer than had been hoped. Some 15 years after apartheid ended, South Africa now has the distinction of being the most economically unequal society in the world, with the world's highest rape statistics and one of the highest rates of obesity. Swilling and Annecke have also created a safe place for research and teaching, at the Sustainability Institute between Cape Town and Stellenbosch, that reaches across intellectual, academic and institutional boundaries. In her chapter, Annecke observes: 'What has mattered most is creating space for new forms of transdisciplinary knowledge that is not just about working across disciplines, but letting real-world problems become the motive forces of applied research and learning'. Their transition is set, as Annecke says, '... within a country struggling with the challenges of a new democracy ravaged by its racist past'.

If you are in a favela or informal settlement you may just be more focused on a peaceful day than a peaceful planet. Similarly, if you are in Tohoku in the region of the Fukushima nuclear reactor, you may be more interested in the government not restarting the local nuclear reactors (Funabashi and Takenaka 2011). Kyoko Fukukawa and Sunil Manghani take the reader from South Africa to Japan with a plea to be more careful in 'the West' not to talk about 'Asian values' so glibly. They take as their target the prominent example, and currently fashionable, nihilistic philosopher Slavoj Žižek who talks of 'Chinese-Singaporean capitalism' as a casual catch-all for anything that's not Anglo-Saxon capitalism. As Fukukawa and Manghani say in their chapter this is lazy 'journalistic shorthand' and not dissimilar to the way in which business text books, and often those on corporate social responsibility (CSR), talk of 'business', 'civil society' and 'the state' as if they constituted the same political economy around the world. How untrue this is, and how carefully we must all dig deeper into the complexities of diverse models of national, regional and global governance. As Fukukawa and Manghani say: '... this chapter evokes the prospects of a genealogical account of Japanese business ethics—i.e. not a teleological account of history, but one that unfolds in different directions and varying speeds'. For those hungry for other variants of capitalism than the Hayekian-Thatcher-Reagan model of neoliberalism, read on as this chapter explains just how Japan rose to become the second largest economy in a few decades after the end of World War II *and* built one of the most egalitarian and peaceful society's ever seen—with a strong sense of history and tradition. Developmental progress does not have to destroy all it sees as anachronistic, and can incorporate the best bits and build on them to create continuity and stability.

It is tempting to dichotomise the situation, as some of the essayists in this volume do. As Donella Meadows (2008) observes, although we know a great deal about the world, it is not enough; and it is often said that we know enough about economics, ecology and technology and the state of the world to solve our problems now without waiting for a new technological solution. One of the most frequently asked questions, especially from business audiences, is: 'Aren't we going to find a

technological fix for this or that problem?' The answer is that there are three variables, or areas, of knowingness and non-knowingness:

- People and our social, psychological and biological development
- The planet with all its history, surprises and suppressed energies
- And, just as important, the unknown, a sense of the future

We cannot know, however hard we try with our apparently scientific, rational mindsets, the future. If there is one truth about the future it is to expect the unexpected—you can't step into the same river twice but we can seek a better future. As John Harris (2012: 38), Director of the Institute for Science, Ethics and Innovation at Oxford University, says: 'Enhancement was the last stage of human evolution and the one before that. By various random processes evolution has brought us to our present state'. Here and now, now.

But how? In this book, if Mark Swilling's sweep is magnificent in presenting a tour de force of theories of change and transition, then Richard Cassels is similarly so. He talks of 12 transitions, although he is careful, and honest, to say that he is talking about 'Western societies'. As a former museum director he is an expert at presenting information to the wandering but curious visitor, and his transitions start with stone making and finish with 'the sustainability revolution'. Read Chapter 3 to see what is in each transition that expands the often-used four part history of human development from agricultural, to industrial, to information, to living sustainably within the Earth's limits.

In Chapter 5, Sara Parkin introduces the reader to the idea that humanity has entered the 'Anthropocene', a term coined by Nobel Prize winner Paul Crutzen in 2011, but within a paragraph she references one of Adam Smith's friends and literary executors, James Hutton, who, in 1795, said that 'the purpose of life is life itself'. In the 1960s the world was encouraged to 'think globally, act locally' and this book has attempted to be grand in scale while dipping into case studies of places and ideas. As Parkin points out, states have to think locally while intelligent global governance develops at speed if we are to face the enormity of the global issues humanity, and the planet face. But how to reconcile the enormity of China with the low-lying and tiny Maldives around the same table thinking globally while acting locally? Parkin quotes Jeremy Greenstock (2008), former UK representative to the UN: 'Democratic accountability evaporates when we think globally ... culture, identity and politics are going local ... states must act locally in a globalised world'.

Parkin was at the heart of the European green 'velvet revolution' in the 1970s and 1980s which led to the downfall of numerous dictatorships and the Berlin Wall, and her chapter reflects the segue from 1989 into the Occupy movement in 2008–2010, with a comment from the then leader of the German Green Party (later to become Foreign Minister), Joschka Fischer, who 'for a moment ... heard the rustle of angels' wings'.

Peace, or the 'the rustle of angels' wings', is what Steve Killelea in Chapter 6 says lies at the heart of being able to manage the necessary transition, 'simply because peace creates the optimum environment in which the other activities that contribute to human growth can take place'. Quite so.

Arriving in Tokyo on a cold December day barely had I checked into my 30 storey hotel than there was a force seven earthquake which hit the building I was in and made it sway vigorously for about a minute. The previous year, on 3/11, as the Japanese know the mighty earthquake and tsunami of 11 March 2011, an offshore earthquake produced a tsunami that swept away whole towns, livelihoods and led to one of the world's greatest nuclear disasters (after the bombing of Hiroshima and Nagasaki 1945 and the Chernobyl meltdown in 1986). But also worthy of note is that the 3/11 earthquake struck Tokyo with a force of seven but almost no damage to infrastructure. This was despite people describing the floor turning to jelly and buildings swaying more than three metres. One resident who was on the 41st floor of her office building said: 'One moment I could see the adjacent office building where my husband was working, and the next I couldn't. That's how much the whole city moved'. The point of citing this incident is that in many poorer, more corrupt, cities the building standards and cement standards would have been compromised and the city would have been laid waste. The scientific, rational mind had triumphed over chaotic, corrupt societies and primitive minds and, for just this instance, come to terms with the natural world. That earthquakes occur we know. That some areas are more susceptible we know, but *when* they will occur we are less sure. One lesson for the future is that in order to marry people and planet, and to manage our ability to be the future (the triangulation that is progress), humanity needs to step back from a 'just in time', 'it'll be alright on the night', 'we can fix anything' culture and build resilience and hazard-adaptiveness into all our planning.

So the necessary transition has multiple entry points—from the state of the planet, to the new Chinese leadership, to US military might, to earthquakes, which in this volume are represented by the diversity of authors. One central question is: what can be learnt from history, or can anything be learnt at all given the apparent enormity of the situation. Given evolutionary randomness and the necessity to make rapid progress, what and how should we learn? Should we concentrate on social or natural systems? Can we overcome what author Tim Flannery (2010) says are the three greatest obstacles to planetary global governance: nationalism; tribalism; and misogyny?

Adapting to the necessary transition requires rapid learning. As bioethicist John Harris (2012: 38) says: 'We can no longer afford the millennia, the millions of years it's taken to evolve to our present state from our ape ancestors. The next stage of evolution has to be accelerated if we are to continue, if we are to survive ... we will either be enhanced or die out ... there is literally no alternative.' So, also, the necessary transition is a process of rapid evolution, of very rapid progress. Or, as biologist Paul Ehrlich put it in 1990, one of 'conscious evolution' (Ornstein and Ehrlich 1990).

For climate scientist Brendan Mackey, in this volume, the most pressing issue is adaptation to climate science, which is '... unlike any other environmental issue ... (this) ethical concern for wellbeing of those yet to be born is the foundation of sustainability ... it is essentially a moral position'. And for public policy and Indigenous land rights expert Ciaran O'Faircheallaigh, in Chapter 12, the most pressing problem is making public policy planning work for the planet and people. For business strategists Suzanne Benn and Cathy Rusinko it is the prism through which we see the issues that will determine how we tackle the situation and solutions. Thus, boundary objects '... beset the theory and practice of business sustainability ... Boundaries are constructed by value judgements: they are temporal, spatial and both intra- and inter-organisational.' And we are back to the issue of looking at the necessary transition as political economy, integrating the length, breadth and wealth of politics, economy and society—and the natural environment.

According to academic and CSR thought-leader Jem Bendell, in Chapter 14, the route of all change must come through reforming the monetary system, but as he says 'modern humans are monetarily illiterate'. A corrupt and out of control financial system with its misallocation of funds and desire to find interest and rewards at whatever cost to the planet provides funding for Rio Tinto Coal's mines. But, as Rio Tinto's Fiona Nicholls argues here, developing economies need energy, and cheap energy at that, so why not allow them access to cheap coal: as far as Rio Tinto is concerned it is a human rights issue, and it also rewards shareholders who, for Rio Tinto, are mostly you and I through our investments, life insurance and pensions. Again, we are all part of the problem and we all have to be part of the transition, or rapid, radical evolution. As Nicholl's one time boss, the former chief executive officer of Rio Tinto, Tom Albanese, not a climate change denier in any way, put it in 2010: '... how do you devise policy for something that won't become reality for thirty or forty years?'² The problem is that the reality is all too real now for many people, it is not that far away.

If the entry points for the necessary transition are multiple then perhaps the action points are too. But this is belied by the commonality of concerns across the essays in this volume regarding climate change, resource depletion and the interface between people and planet, albeit with different emphases. The transition is already happening and, as Sara Parkin says, is 'a complex, muddled process'. There are however, she says, four frameworks to address: resilience; real capital growth; the psychology and sociology of change; and living in truth. These lead to five 'policies in transition': ecological demographic transition; extreme community energy; deep fair trade; sparse working, radical localism; and positive deviant leadership.

Climate change scientist Brendan Mackey declares that 'climate change is everyone's business' while Sandra Waddock, in Chapter 7, says that '... the existing social contract is badly broken ... and much of today's business expertise, in fact, lends

itself to keeping the system as it is intact ... through tactics of stalling, power and leverage, political action committees and campaign contributions'. So for much of the business world there is no 'necessary transition'. But for enlightened business leaders, with both morals and profits in mind, this is a Schumpeterian moment as 'sustainable entrepreneurship means creative destruction', according to Stefan Schaltegger and Erik Hansen in Chapter 11.

Joseph Schumpeter, a political scientist, drew on Karl Marx for his understanding and articulation of the process in free market capitalist economies of destruction and collapse that lead to new vistas for investment and progress. Sometimes this has been sectoral, as in the rapid transition from horsepower to the internal combustion engine, and sometimes geographical as in the collapse of gold mining in parts of North America and Australia. In the case of the necessary transition it is agreed that the current Schumpeterian gale is a global change point, and that the issues of climate change, resource depletion, population growth and global inequity have to be faced by the global community. The greatest challenge, and therefore the greatest opportunity, then, lies in the area of global governance. Global governance relates to local *and* personal identity. The necessary transition therefore requires a multi-level perspective with a single level objective—the delivery of human security to all.

If you are about to dip into this selection of essays, there is one truth that shines out. The authors exemplify the statement that is sometimes attributed to the Canadian author Margaret Atwood that 'we may be born somewhere, and we may die somewhere but this doesn't necessarily define our identity'. The authors are all global and local at the same time, as we all should be and sometimes are.

This book is divided into sections. Part 1 looks at history and transition theory through the eyes of Mark Swilling and Richard Cassels from their very different perspectives. Mark is a South African academic and an Ashoka Fellow and Richard is a former museum director who has lived and worked in the Middle East, UK and New Zealand, currently living in Australia, and who now speaks on climate change. Their contributions sandwich a case study of the inspirational Sustainability Institute between Cape Town and Stellenbosch in South Africa, which is where Eve Annecke and her partner Mark Swilling are based.

In this reflective part of the book Kyoko Fukukawa and Sunil Manghani, in Chapter 4, take us to Japan and how people in that country might see the fields of CSR and sustainability. Kyoko and Sunil are based in the UK but their life experiences have been shaped by their countries of origin. Just as Mark Swilling, Eve Annecke and Richard Cassels challenge us to think again about human 'progress' and development, so too Kyoko and Sunil ask us to start from somewhere new outside the hegemony of the Western mind.

Part 2 is called 'Re-seeing the World: Paradigm Shifts and Action' and begins with a tour de force by the political and social activist Sara Parkin. For many decades she has championed change which understands the state of the planet and, in her roles of agitator, activist, thinker and entrepreneur, she has helped bring many others to the state of anticipation. She is followed by Australian Steve Killelea who for many years stood atop a surf board, then trained in software development and made a

fortune (every time you use an ATM you should think of Steve). He then decided that the best way to spend his money was on peace, as simple as that. His contribution to the debate on the links between economics and peace has been immense and often controversial on all sides. That peace is an essential for any of us to think carefully about the future seems a *sine qua non*, but we don't so often talk about it and how peaceful societies come into being.

Over the years, Sandra Waddock has written about mindfulness, corporate responsibility and sustainable enterprise. In this book she goes to the heart of the political economy, although she doesn't use the term, and tackles the necessity for a new contract or relationship between business and society. Given the globality of international business and the overarching impact of the market economy, Sandra's essay ties in with Jem Bendell's chapter at the end of the book on finance. Although both speak in different tongues they are both speaking the same language. Caroline Digby is Sustainability Director at the Eden Project, which the author of the book's Foreword, Tim Smit, co-founded. This project exemplifies in many ways the new social contract. The Eden Project is an educational charity that works closely with business and the local community and has so far inspired some 13 million people to visit it to marvel at the diverse and fascinating world of plants, and be wowed by a post-industrial development that is working hard to be more sustainable.

Political economy is multidisciplinary and Suzanne Benn is a professor not of corporate responsibility but of sustainable enterprise (CSR is so last century!), being what every organisation should be aiming for after it has climbed the foothills of corporate responsibility. Suzanne's and Cathy Rusinko's chapter, along with Chapter 7 by Sandra Waddock, lead to Part 3 of the book on sustainable development, climate change and business and finance, where climate scientist Brendan Mackey states what should be obvious, that climate change is everyone's business. Climate change, of course, is only one of the entry points for this collection on transition, development and change but it is fundamental. Climate change is probably more global and local at the same time than any other subject: everyone understands their own weather, but most people don't understand global climate issues or, to put more prosaically, Earth systems science.

Stefan Schaltegger and Erik Hansen work at Leuphana University Lüneburg in Germany and their chapter for this book is intensely practical, focusing, among other sectors, on the apparel industry. Germany has a lead in many areas when it comes to sustainable enterprise, particularly in industrial change and design. Indeed, it could be argued that German leads in this area and has developed a sophisticated, complex economy, unlike Australia where the reliance on mining has led to an overpriced dollar and an economy that lacks resilience because of its lack of complexity. Fiona Nicholl's chapter recognises that the move away from fossil fuels, and particularly from coal, is inevitable. But not yet, and not while new industrialising countries such as China and India are demanding easily usable energy reserves to provide electricity.

There is no denial of climate change on the part of intelligent companies such as Rio Tinto, but there is a difficulty in matching the necessity for the necessary

rapid transition to a post-carbon world and the demands of new industrialising countries. The fossil fuel sector has joined forces with the pharmaceutical sector in arguing that denying cheap energy and cheap pharmaceuticals to people just coming out of poverty is a human rights issue, while failing to recognise that the rest of society has had to absorb the externalities created through using subsidised fossil fuels.

Ciaran O'Faircheallaigh's call for there to be changes in public policy is therefore where the debate should be. Until the bias towards the energy source that fuelled the industrial revolution is shifted towards energy sources that work at living on the interest, not the capital of planet Earth we will continue to leave mining holes in our planet home and threaten our existence.

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1

Contested futures

Conceptions of the next long-term development cycle

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Introduction

This chapter will review some of the emerging *stories of the future* that have been generated by the global crisis. By drawing on the multi-level perspective (Grin *et al.* 2010), neo-Schumpeterian perspectives (Gore 2010; Köhler 2012) and a political ecology perspective on transitions (Lawhon and Murphy 2011), it will be argued in the first part of the chapter that these are attempts to re-imagine a post-crisis landscape in ways that, for some, will preserve the status quo (using, for example, market-oriented 'green economy' discourses) while for others quite significant changes in the patterns of production and consumption that have dominated the post-World War II period are envisaged. As such, these re-imaginings deserve attention because—thanks to the pervasive use of computer-aided scenario-building in recent times—images of the future do influence decisions that can shape these futures. However, the primary concern of this chapter is not just stories of the future, but also the kinds of real-economy conditions that could materially contribute to the possibility of a more sustainable and equitable future. In the second part of the chapter, it will be argued that rising resource prices have joined climate change and ecosystem services as a key landscape driver of change. After

9

Boundary objects, HRM tools and change for sustainability

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Introduction

This chapter illustrates a novel approach to using boundary objects (BOs) as change agents. In particular, the chapter illustrates how tools from stages of the human resources management (HRM) process can be used as BOs in order to facilitate changes necessary to create and maintain more sustainable organisations. BOs, which are discussed in greater detail below, can translate, transfer and/or create knowledge across diverse boundaries or groups of stakeholders. In organisations, BOs can translate, transfer and/or create knowledge between and among functions, departments and other groups. This chapter illustrates how knowledge about sustainability can be translated, transferred and/or created between and among all organisational functions by using HRM tools as BOs. It builds on arguments made by other scholars (e.g. Jabbour and Santos 2008) that the HR function should be integrated with organisational sustainability by formulating HRM policies and practices that stimulate the social, economic and environmental strategies of the organisation. It also builds on earlier work analysing the role of BOs in generating and supporting organisational change (Oswick and Robertson 2009), and on the role of BOs in underpinning the formation of a community of practice around sustainability (Benn and Martin 2010).

HRM tools that can act as BOs include HRM practices and policies with respect to planning, recruiting, selection, orientation, training, evaluation and replacement. HR planning tools, and other HRM practices and policies that reflect an organisation's commitment to sustainability, can function as BOs to bridge the gap between traditional HR strategy and sustainability strategy in organisations. The chapter finds that the use of HRM tools as BOs needs to be integrated throughout the HRM process, and also needs to be carefully considered in terms of the capacity to impede or support an integrated approach to sustainability in organisations.

First, the challenges of implementing sustainability in organisations are explored as examples of boundary problems. Next, we provide a detailed definition and characteristics of BOs. We illustrate how organisations can use HRM tools as BOs in order to facilitate change and create and maintain sustainability—including environmental, social and economic/financial sustainability—across all organisational functions. Practical examples of how organisations are using HRM tools as BOs to pursue or enhance sustainability are also included. Lastly, critical perspectives and future research directions are discussed.

Sustainability challenges as boundary problems

At the business level, the Brundtland definition of sustainability can be interpreted as: 'meeting the needs of a firm's direct and indirect stakeholders (such as shareholders, employees, customers, suppliers, pressure groups, communities etc) without compromising its ability to meet the needs of future stakeholders as well' (Dyllick and Hockerts 2002: 131). Hart and Milstein (2003: 66) describe a sustainable company as one that 'produces concurrently economical, social and environmental benefits—known as the three pillars of sustainability'. Correspondingly, some researchers refer to these three pillars or dimensions of sustainability as 'the triple bottom-line' (e.g. Elkington 1997). Examples of environmental sustainability include efforts to conserve, reuse and regenerate resources in order to ensure that future generations have access to the natural resources they require. Examples of social sustainability include efforts to promote equity, diversity and social justice across and between communities and nations. Examples of economic/financial sustainability include efforts to promote long-term survival of the organisation and stakeholders, while reducing poverty and promoting fair trade. Organisational applications of these sustainability dimensions will be discussed in later sections.

While sustainability is a holistic concept, its implementation as such is highly challenging. There are temporal, spatial and, for the purpose of this chapter, knowledge-based boundary issues to consider. The three 'pillars' are each associated with specific sets of knowledge. Bringing about change that enables sustainability to be implemented in organisations requires integrating across multiple knowledge boundaries, and between and among many and diverse stakeholders with respect

to the three dimensions or types of sustainability—environmental, social and economic/financial. It requires bringing together scientific or technical experts with managers and employees from across the organisation, and hence, a wide range of disciplinary and functional backgrounds and their knowledge bases. The development of successful sustainable products, for example, requires high-level marketing and raw material scale-up innovations, as well as product redesign according to sustainability principles and standards, which may have very specific technical requirements (Nidumolu *et al.* 2009). Advancing sustainability performance is a matter of addressing the systemic and holistic nature of sustainability knowledge, and of recognising, for instance, the interconnectedness and complexity of sources of environmental impact and their relationships to social and economic concerns of the organisation (Porter 2008).

Addressing this complexity and working towards implementing sustainability means collaborating with a range of other organisations that may have very different understandings of the importance or applicability of sustainability. For example, raising awareness and developing such knowledge may require corporations to form partnerships with long-time adversaries such as advocacy-based environmental organisations (Jamali and Keshishian 2009; Seitandi and Crane 2009). Employees may need to work with ‘partners’ from different professional, occupational or social backgrounds that represent organisations or organisational groups or teams with very different priorities and sources of power. Developing a shared understanding of what sustainability might mean between/among organisations and their supply chain partners, and/or other business alliances and networks, becomes difficult because of these multiple priorities and contextual understandings of sustainability (Selsky and Parker 2005). The challenges described above, all of which arise as a result of working across multiple and diverse boundaries, are known as boundary problems.

As illustrated above, boundary problems beset the theory and practice of corporate sustainability, and sustainability constraints can be conceived of as occurring at boundaries (Ny *et al.* 2006). Boundaries are constructed by value judgements; they are temporal, spatial and both intra- and inter-organisational. Boundary problems have the potential to interfere with the key principles that are widely acknowledged as underpinning the integration of sustainability into business practices. These principles include the creation, translation and integration—throughout the organisation—of shared understandings, meanings and knowledge around the relatively malleable concept of sustainability. Issues of group identity can impinge on developing an integrated sense of sustainability across an organisation. For example, Angus-Leppan *et al.* (2009) found different stakeholder groups within a major bank had very different interpretations of the bank’s corporate social responsibility (CSR) and sustainability messages, and of their importance.

The resolution to boundary problems is not just a matter of working across different knowledge boundaries, since issues of sustainability are complex concepts, open to multiple interpretations by multiple stakeholders (Basu and Palazzo 2008; Angus-Leppan *et al.* 2010). Hence, the challenge of integrating sustainability involves developing meaning around sustainability that is holistic, that brings

together understandings from the natural and technical sciences into management thinking, that can be shared across functional and disciplinary boundaries, and that considers all levels of systems thinking (Benn and Martin 2010). Essentially, firms need to establish a community of practice centred on sustainability-related knowledge across the organisation, and the competitiveness of the firm will depend on the extent to which differences in sustainability practice can be coordinated (Brown and Duguid 2001). Traditional approaches to either incremental or transformational change in the extant literature do not adequately recognise or address this key problem (Dunphy *et al.* 2007; Benn and Baker 2009). In this chapter, we argue that BOs in the form of HRM tools can meet this challenge, as is further discussed in sections below.

Characteristics of BOs

In the literature, the term used for objects that can travel across knowledge and meaning-related boundaries is ‘boundary object’. Star and Griesemer (1989) first introduced the concept of BOs as a means by which co-operation and managing diversity could be facilitated across a heterogeneous group of scientists. They defined BOs as conceptual tools:

... which both inhabit several intersecting worlds and satisfy the informational requirements of each of them. Boundary objects are objects which are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become more strongly structured in individual use. These objects may be abstract or concrete. They have different meanings in different social worlds but their structure is common enough to more than one world to make them recognisable means of translation. The creation and management of boundary objects is key in developing and maintaining coherence across intersecting social worlds (Star and Griesemer 1989: 343).

BOs can be artefacts in the form of made things, such as tools or visual representations, or discourses, terms, concepts, processes or technologies (Star and Griesemer 1989; Wenger 1999). Reports, standardised forms and methods, protocols, models, repositories, maps of interdependencies such as Gantt charts, all help actors differentiate their knowledge domain, but also have the capacity to help them share or collaborate to solve problems and develop new knowledge (Star 1989). In the different domains, specialised knowledge can be built utilising the BO. Yet the BO is plastic enough for the separate domains to share some commonalities. In this way, BOs have a role in initiating and supporting change that involves actors from different social roles or disciplinary areas. Specifically, they have a role in sharing and transforming knowledge and changing practices across social, occupational and professional boundaries, such as across the different interests and knowledge backgrounds of members of a community of practice (Wenger 1999; Carlile 2002, 2004).

BOs enable discrepant arrays of knowledge and meaning to be shared and transformed across such boundaries because they act as 'empty vessels that are filled differently by whatever is the local beverage' (Sapsed and Salter 2004: 1519). We should point out that a BO is not the same as organisational culture, which may be represented through certain artefacts, but is an artefact that specifically provides a means of sharing and transforming knowledge across various types of boundaries.

This chapter builds on earlier work analysing the role of BOs in generating and supporting organisational change (Oswick and Robertson 2009). In particular, our contribution focuses on using BOs in the HR function, and throughout the HRM process, to span knowledge- and meaning-related boundaries that exist as organisations pursue or enhance a commitment to sustainability. As Soliman and Spooner (2000) point out, HRM is essentially a knowledge-management function and HR managers need to be able to manage knowledge transfers across multiple areas of the organisation.

BOs may be structural, symbolic or visionary, or have combinations of these properties. In organisations, records such as employee payroll records and a wide range of other records concerning outcomes, products and targets are examples of structural BOs. Structural BOs also include policies and practices such as planning and evaluating, and the corresponding tools used to plan and evaluate. Structural BOs have been most studied, with a particular research emphasis on the relative usefulness of different degrees of structure.

Symbolic BOs, such as metaphors, are also referred to in the literature and are useful in the context of developing shared meaning around ambiguous or complex terms (e.g. Thompson 2005). Koskinen (2005) found that metaphoric BOs can play an important role in knowledge co-ordination and sharing of innovation processes in an organisation. The visionary boundary object is a conceptual object that prompts emotive responses from a range of people and is regarded as so sacred that it is difficult to argue against (such as 'world's best practice'; Briers and Chua 2001; Benn and Martin 2010). As with other BOs, the visionary object must be able to be tailored into specific settings. It must have a 'hard' core and a 'soft' or 'plastic' periphery that allows for different interpretations to be constructed by different constituencies within their specialised knowledge bases.

Carlile (2004) has listed characteristics of BOs to include shared language, specification and transformation. That is, they can be understood by a range of actors, they are specific to a certain task and they generate change. Hence, BOs can address boundary problems by bridging learning boundaries that distinguish the different practices of different inter- and intra-organisational groups (Scarborough *et al.* 2004).

Standardisation has always been regarded as a characteristic of BOs. Lutters and Ackerman (2007) found that loose routinisation, punctuated crystallisation and meta-negotiation streams are central properties of BOs. Essentially, these findings mean that BOs can be in a state of continual modification; they are relevant and utilised at particular points of time, but as an aspect of an ongoing process and set of interrelationships. Since BOs can be in a state of continual modification, they are appropriate tools to facilitate organisational change.

HR, BOs and sustainability

So how can the HR function of the organisation—which is often charged with the processes of change—facilitate more sustainable organisations, which includes addressing the corresponding issue of boundary problems across the organisation? In this section of the chapter, we examine how HRM policies and practices, acting as BOs (as we have described them above—structural, symbolic or visionary concepts), can help to unite and transform disparate organisational functions and stakeholders around a shared concept of sustainability; and thus, resolve boundary problems and create more sustainable organisations.

In the literature there is a fairly long history of contributions that view the HR function as a locus for organisational change. For example, Storey (1992) and Sherriton and Stern (1997) believed that HR can and should play a major role in implementing change. Caldwell (2001) held that HR managers should be at the forefront of organisational change initiatives. In 1997, Ulrich suggested compatibility between HRM and change-oriented HR roles.

HRM tools as BOs

HRM tools can play the role of BOs, as they (BOs) are defined above. As BOs, HRM tools can create and share meaning, knowledge and practices that can be integrated throughout the organisation. Specific HRM tools that can act as BOs include employee record and report keeping, policies and practices such as diversity policies, and other sources and examples of formalisation and standardisation. Additional HRM tools that can act as BOs include job planning and descriptions, criteria for recruiting, selection and evaluation, and training programmes. These HRM tools can bridge the gap between traditional HR strategy and sustainability strategy in organisations.

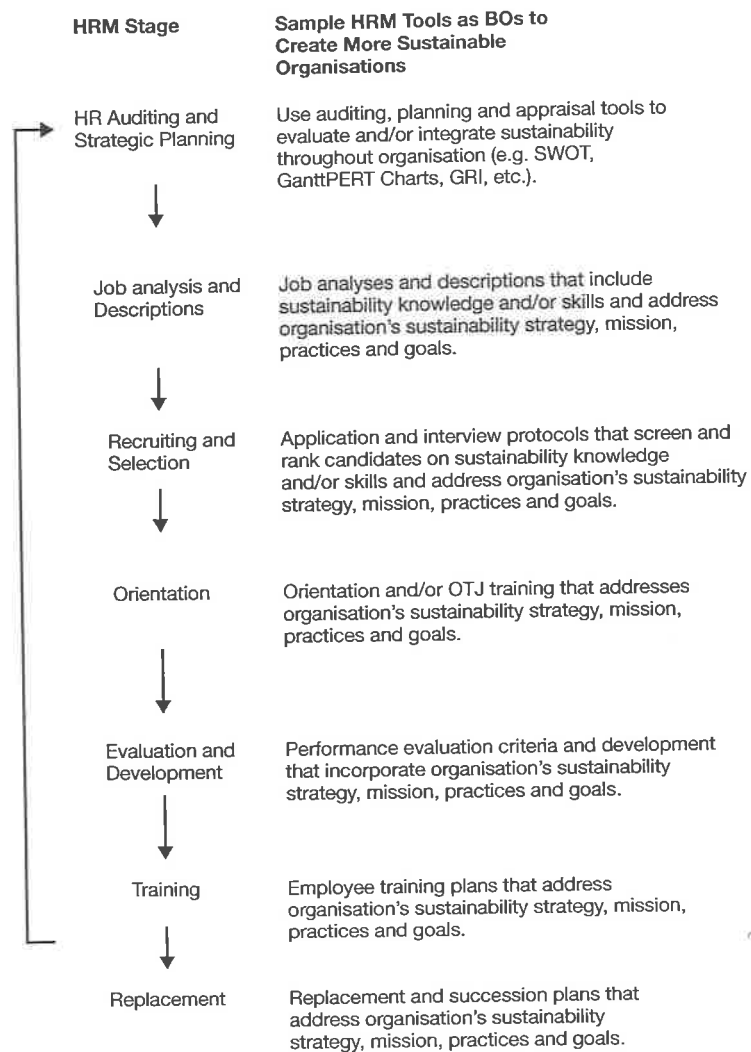
In both textbooks and the academic literature, HRM in organisations is often addressed as a series of stages or processes, including: HR auditing and strategic planning; job analysis/descriptions; recruiting; selection; orientation; evaluation and development; training; and replacement (e.g. Jabbour and Santos 2008; Ivancevich 2009). Correspondingly, each stage is characterised by specific tools, processes and/or practices. These tools, processes and practices can act as BOs to create a set of shared meanings and practices that are integrated between and among the many and diverse functions and members of the organisation.

For example, at the HR auditing and strategic planning stages, auditing and planning tools such as SWOT analysis and PERT charts are knowledge-management tools that can be used to analyse the current situation and future needs, and to develop a strategic plan for HR that can be accessed and built upon separately by different groups across the organisation. This strategic plan is then integrated throughout the organisation in the form of other HRM tools such as job descriptions and criteria for recruiting, selection, orientation, evaluation, training and

replacement. Hence, these HRM tools play the role of BOs by creating and sharing meaning, knowledge and practices that are integrated throughout the organisation.

Likewise, tools at each of the HRM stages can be used as BOs to create and share meaning, knowledge and practices in order to create more sustainable organisations, as is illustrated in Figure 9.1. In the next section, we explore how BOs in the form of HRM practices and policies can facilitate the changes necessary for implementation of sustainability across the organisation.

Figure 9.1: Using HRM tools as boundary objects to create more sustainable organisations



HRM tools, BOs and environmental sustainability

As discussed earlier, environmental sustainability includes efforts to reduce and reuse resources. Previous empirical work has indicated that HRM practices are critical factors in implementing environmental management schemes in organisations (Wee and Quazi 2005; Sammalisto and Brorson 2008) and in encouraging environmental innovations (Ramus 2002). The specific operations of HRM tools as BOs can explain these general findings.

At the HR auditing and strategic planning stages, tools such as SWOT analysis and/or Global Reporting Initiative (GRI) criteria for sustainability reporting can be used as BOs to analyse the organisation's current status with respect to environmentally sustainable practices (e.g. reusing resources and reducing consumption), and to develop plans for the future. Acting as BOs, these tools can span the diverse functions, such as the accounting, finance and engineering or environmental divisions, within the organisation, and co-ordinate different perspectives around sustainability planning and strategy.

BOs such as HR audit and strategic planning tools that focus on co-ordinating sustainability across the organisation can lay the groundwork for additional HRM tools to act as BOs in diffusing sustainability throughout the organisation. For example, job analyses and descriptions can act as BOs to co-ordinate sustainability across different organisational functions. In keeping with Star and Griesemer's (1989) definition (cited above) of BOs, the job analyses and descriptions must be both universal across multiple functions and malleable within specific functions. For example, a BO in the form of an organisation-wide policy to include responsibility for conserving resources in job analyses and descriptions can be subsequently custom-tailored for each individual job acting as a form of knowledge development within each function. Hence, BOs must be malleable and must function at multiple levels—including organisation and function/department levels—in order to create more sustainable organisations.

Likewise, recruiting and selection tools can act as BOs in the form of organisation-wide recruiting and selection protocols and criteria that demand candidates' knowledge of and/or experience with environmentally sustainable practices consistent with the organisation's environmental sustainability plans, mission and goals. However, each function or department can customise these BOs by developing specific definitions and measures for the type of knowledge and experience that is appropriate for their particular mission, within the context of the larger organisation.

Organisation-wide orientation and training programmes and tools can act as BOs to facilitate more sustainable organisations by including information on environmental sustainability that is consistent with the organisation's environmental sustainability plans, mission and goals. Each function or department can customise these BOs by developing supplementary training that is appropriate for their function within the context of the larger organisation.

Likewise, evaluation and promotion criteria can act as BOs to diffuse sustainability throughout the organisation by including employee contributions to the organisation's environmental sustainability plans, mission and goals. Individual

functions and departments can custom-tailor these organisation-wide BOs to fit their mission in a way that is also consistent with the larger organisational mission.

The same goes for organisation-wide replacement and succession plans. Organisation-wide criteria that address environmental sustainability knowledge and expertise in replacement and succession can act as BOs to facilitate organisation-wide diffusion of environmental sustainability. Individual functions and departments can adapt these organisation-wide BOs to fit their specific missions, in a way that is consistent with the organisation level mission.

Hence, the tools and practices used in these stages in the HRM process, acting largely as structural BOs, can create, transfer, translate and/or integrate knowledge about how organisations can be more environmentally sustainable across organisational boundaries such as diverse knowledge bases and functions. The various protocols, records and plans may be interpreted differently according to the needs of the specific functions, stakeholder group or knowledge area within the organisation, but they act to align the different actors around some shared understanding or knowledge base concerning sustainability.

Of course, the HRM stages are not as linear as they are depicted in Figure 9.1. However, as is illustrated in Figure 9.1, the process is iterative, so that the cycle continues to loop back to HR auditing and strategic planning, which evaluates the present situation, and uses that information to plan for the future. Likewise, the arrows between HRM stages in Figure 9.1 illustrate how each successive stage facilitates the next stage and, correspondingly, how BOs at each stage can facilitate sustainability at current and successive stages.

HRM tools, BOs and social sustainability

As discussed earlier, social sustainability includes efforts to promote equity, diversity and social justice. Some researchers (e.g. Pfeffer 2010) observe that social sustainability is addressed less frequently in organisations than environmental and economic/financial sustainability and, when addressed, the focus is often external stakeholders rather than employees. HRM is uniquely positioned to facilitate social sustainability within organisations through its responsibility for recruiting, training, developing, evaluating and retaining employees. Therefore, with respect to HRM, a good example of a BO that can facilitate social sustainability throughout the organisation is a diversity policy. Jabbour and Santos' (2008) summary of the literature, including several empirical studies, finds that diversity management can add value to the organisation with respect to enhancing sustainability. We suggest the reason is because a diversity policy can promote equity and diversity by attracting and retaining a qualified set of employees from diverse backgrounds, and because it acts both as a visionary and as a structural boundary object.

A diversity policy begins as part of the HR strategic plan, which can be integrated throughout the organisation via BOs in later HRM stages. In effect, it can then act as a job classification scheme, accessible to a wide range of employees but with a hard core of meaning around a job description. For example, job descriptions,

and recruiting and selection criteria, can act as BOs to facilitate attraction of a diverse employee population. Retention of a diverse employee population can be facilitated through BOs such as orientation, training and development programmes. In addition, diversity policies can facilitate attraction and retention of a diverse employee population through BOs such as organisation-wide zero tolerance policies, and policies prohibiting hostile, predatory or otherwise negative work environments.

Some researchers (e.g. Pfeffer 2010) argue that social sustainability in the workplace also includes issues such as organisation-wide transparency, ethical treatment of all employees and respect for all employees. Under these circumstances, BOs to facilitate social sustainability in organisations would include policies on transparency, ethics and mutual respect, which can be included as part of the HR strategic plan.

HRM tools, BOs and economic/financial sustainability

As discussed earlier, economic or financial sustainability includes efforts to promote long-term survival of the organisation and stakeholders, while reducing poverty and promoting fair trade. While we deal with each of the 'three pillars' of sustainability separately in this paper in order to highlight the potential role of specific HRM tools as structural boundary objects, we stress that a key function of BOs in an organisational or inter-organisational context can be to bring together the three separate elements of sustainability in a holistic approach. Previous work has explored the role of visionary BOs in performing this role (Benn and Martin 2010).

HRM tools that act as BOs can promote synergies between and among the three types of sustainability and how they are manifested in organisations. Boudreau and Ramstad (2005) have linked the HRM function to environmentally, socially and financially sustainable outcomes, arguing that strategic success for the organisation is dependent upon a long-term perspective that allows for an emphasis on human capital, as well as on environmental and financial responsibility. Our exploration of BOs supports this claim. For example, developing protocols around environmentally sustainable practices, such as reusing resources or reducing resource usage, can have the effect of decreasing costs, which is also economically/financially sustainable (e.g. Rusinko 2007).

BOs in the form of diversity policies, which promote social sustainability, also help to promote the long-term economic survival of the organisation, since they facilitate attracting and retaining the best and brightest employees from all backgrounds, which can foster speed and innovation (Shena *et al.* 2009). Similarly, BOs that facilitate environmental and/or social sustainability at HRM stages—including job descriptions, recruiting and selection criteria, orientation and training programmes, and evaluation and replacement plans—can also act as BOs to facilitate economic/financial sustainability, since environmental and/or social outcomes can also facilitate the long-run financial survival of the organisation.

HRM, BOs and sustainability: examples in practice

While the concept of using HRM tools as BOs to facilitate sustainability in organisations is new and under-researched in the literature, there are a few examples of organisations that are using the HR function as a major player in integrating sustainability into their strategic plans, and, although their initiatives are not stated as such, they may be interpreted as examples of using HRM tools as BOs in order to facilitate sustainability throughout their organisations. In effect, the HR functions of their organisations are providing an 'infrastructure' of BOs to bring about change, as suggested by Oswick and Robertson (2009). According to Lutters and Ackerman (2007), BOs in the form of HRM tools operate at specific points of time, but as an aspect of the ongoing HRM process, and are embedded in a historical set of interrelationships.

For example, Casler and colleagues' (2010) report on the Sierra Nevada Brewing Company (SNBC), which was founded in 1980 and has always valued environmental, social and economic/financial sustainability, found that SNBC aligns its HR practices with an emphasis on environmental sustainability. This approach to HR results in environmentally sustainable initiatives that also decrease costs and, therefore, positively impact economic/financial sustainability. One of the ways that SNBC addresses social sustainability is through a standardised employee benefits package that focuses on protocols for healthy employees. For instance, the company offers a comprehensive wellness programme, including on-site healthcare for employees and dependents, and massage therapy and on-site childcare. Interpreted variously across the organisation, these protocols and standards assist in building new knowledge around employee health and wellbeing. As these tools are dealing with more explicit knowledge about employee health, they are relatively strongly structured.

Likewise, SNBC has integrated sustainability into its HR strategic planning process, and into each of its HRM stages, with the end result of disseminating sustainability throughout the organisation. Hence, while it may not realise it or acknowledge it at this time, SNBC is an example of a company that is using HR tools as BOs in order to create and maintain a sustainable organisation. For example, SNBC created two positions with the title of sustainability co-ordinator. Their new employee orientation process, which includes the sustainability co-ordinators as instructors, emphasises the sustainability values that define the company—effectively providing a visionary BO with which the employees from across the organisation can identify and learn to apply in their own work context. With respect to selection and retention, SNBC values employee fit with sustainability values as equally important or more important than employee–job fit. SNBC encourages employee feedback and suggestions with respect to sustainability practices and policies. It focuses on hiring and promoting from within the company to maintain its culture of sustainability.

Wirtenberg *et al.* (2007) surveyed a convenience sample of firms from the Global 100 Most Sustainable Corporations in the World, and found that HR played a major role in integrating sustainability in those companies. The HR function helped to integrate sustainability into strategic planning, and also used traditional HRM tools, such as recruiting, training, development programmes and policies (including diversity policies), to integrate sustainability throughout these organisations and across various communities of practice. Therefore, the firms in this study can also be viewed as examples of organisations that are using HRM tools as BOs to create and maintain sustainable organisations.

In another example, Benn *et al.* (2011) describe the organisational change processes that underpin the sustainability successes of Fuji Xerox Australia Eco-Manufacturing Centre in Sydney. This centre now accounts for 80% of Fuji Xerox Australia's spare parts requirements—these parts would otherwise have gone to landfill. The success of the centre rests on both technological advances and a high performance workplace culture. Both these aspects of its success are based in the innovative capacity of a highly interdisciplinary team, fostered by deployment of BOs as a means of engaging employees in the ecological agenda. For example, as a visionary BO (Briers and Chua 2001), 'world's best practice' is translated at this Fuji Xerox plant into 'world's best practice in eco-manufacturing', widely recognised as such within the global Fuji Xerox organisation and the sector as a whole.

HR tools have been instrumental in developing the capacity upon which the perceived legitimacy of this visionary BO rests. For example, the firm has differentiated between recycling and remanufacturing with carefully specified HR management strategies defining the appropriate skills and capabilities that need to be allocated to these different technologies. The company is currently focused on challenges such as how to accommodate cultural differences in the distribution and levels of skill in other countries where manufacturing occurs and how to transfer the cultural change processes deployed in Sydney to build employee commitment, engagement and multi-skilling (Benn *et al.* 2011). Further research could explore the role that BOs in the form of HR tools could play in addressing these challenges.

Turning a strategic priority into practical initiatives saw another Australian organisation, the water utility Yarra Valley Water (YVW), engage in organisational learning around sustainability. First, supported by The Natural Step, the management team at YVW then decided they needed more practical and strategic direction setting and embarked on the widespread implementation of life-cycle analysis (LCA) (Crittenden *et al.* 2011). Acting as a structural BO, the LCA enabled the economists, accountants and engineers to each build their own disciplinary, quantitative understanding of what reducing environmental impact might mean.

We suggest that the reason the LCA has been so successful in supporting the sustainability implementation programme at YVW¹ is that it was incorporated into the organisation's HR systems. The HR manager utilised the LCA as a BO tool to motivate wider employee engagement and to foster recognition of the sustainability impacts

¹ Yarra Valley Water has been awarded a number of sustainability-linked awards and prizes.

in social, environmental and economic dimensions. LCA was deployed in the Orientation HRM phase (Fig. 9.1), figuratively displayed as the 'YVW Sustainability Roadmap' which featured in murals and on PC screensavers across the organisation. It became an aspect of the Evaluation and Development and Training phases of HRM (Fig. 9.1), incorporated into the reward and recognition system of YVW, and operationalised into a range of job descriptions and training programmes. Effectively bringing the YVW organisation together as a community of practice, the LCA BO supported the development of a shared understanding and a strategic perspective across organisational functions of what sustainability might mean for the organisation as a whole. Hence, the LCA enabled the triple bottom-line to become individually meaningful to the range of internal and external stakeholders.

The above examples illustrate how BOs can function as change agents by creating and sharing new knowledge and practices across diverse functions in organisations. Likewise, these examples illustrate how BOs, functioning as change agents, create more sustainable organisations by integrating and/or expanding sustainability and sustainable practices in organisations.

Critical perspectives

When criticisms are levelled at BOs, they are typically levelled in three areas: power; calcification; and lack of critique/reflection. A number of writers argue that BOs have a performative power, altering the relationships of what is represented and favouring some aspects above others (e.g. Iedema 2003; Oswick and Robertson 2009), hence enhancing certain power distributions. Researchers and practitioners need to be aware of this potential when recommending or using BOs (Carlile 2004).

BOs may also 'calcify' as standards and thus become a barrier to change. Another related problem is that BOs may have a stultifying effect on change by maintaining control over tasks and limiting innovation (Oswick and Robertson 2009). With respect to HRM tools, we argue that standardised policies, criteria and programmes may be effective BOs to diffuse sustainability throughout the organisation. To guard against possible calcification or stultification as a result of using these types of structural BOs, metaphoric BOs could be introduced as a means of generating new understandings across organisations and their partners, suppliers and other stakeholders (Koskinen 2005). For example, a sustainability 'roadmap' which defines the sustainability vision and the steps needed to get there can help members of cross-functional teams with different knowledge backgrounds to develop a shared way to approach a sustainability change programme. Organic metaphors that badge the organisation as 'living cell' or 'ecosystem' can also help guide individuals towards a common, but evolving, focus on sustainability.

As is often the case with change agents, a potential problem with BOs is without critique or reflection. However, this problem, as well as the problems with power, calcification and lack of critique/reflection, can be mitigated if BOs are used

Future directions

Sustainability is a highly diffuse concept, whose meaning can be differently interpreted by a range of interest groups and vested interests within organisations. Trade-offs are made between and among the different elements of sustainability depending on the power and influence of various stakeholders and such interests (Angus-Leppan *et al.* 2010). Future research can explore how BOs are deployed by different sources of power, and to what ends, in terms of a holistic approach to sustainability. In addition, future research can also test whether deploying BOs within the context of change models that are rooted in collaboration, learning and reflection can result in a more holistic and collaborative approach to sustainability in organisations.

Conclusion

This chapter has demonstrated a novel approach to using HRM tools as BOs in order to translate, transfer and/or create knowledge across diverse functions for the purpose of creating and maintaining more sustainable organisations, thus addressing the boundary problems that have impeded the integration of sustainability. Practical examples specifically addressed environmental, social and economic/financial sustainability in organisations. In addition, organisational examples demonstrated how BOs in the form of HRM tools are also change agents, as they translate, transfer and/or create knowledge about sustainability throughout the organisation, and facilitate organisations' paths to sustainability. While we recognise that use of HRM tools as BOs has potential downsides, if carefully utilised as an aspect of an HRM programme that is reflective and participative, they have great potential to not only bring different aspects of the organisation to share sustainability understandings, but to bring new knowledge together into a more holistic integration of sustainability. More generally, the chapter illustrates how the HR function of the organisation can be leveraged to contribute to the change processes needed to implement sustainability.

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rapid transition to a post-carbon world and the demands of new industrialising countries. The fossil fuel sector has joined forces with the pharmaceutical sector in arguing that denying cheap energy and cheap pharmaceuticals to people just coming out of poverty is a human rights issue, while failing to recognise that the rest of society has had to absorb the externalities created through using subsidised fossil fuels.

Ciaran O'Faircheallaigh's call for there to be changes in public policy is therefore where the debate should be. Until the bias towards the energy source that fuelled the industrial revolution is shifted towards energy sources that work at living on the interest, not the capital of planet Earth we will continue to leave mining holes in our planet home and threaten our existence.

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1

Contested futures

Conceptions of the next long-term development cycle

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Introduction

This chapter will review some of the emerging *stories of the future* that have been generated by the global crisis. By drawing on the multi-level perspective (Grin *et al.* 2010), neo-Schumpeterian perspectives (Gore 2010; Köhler 2012) and a political ecology perspective on transitions (Lawhon and Murphy 2011), it will be argued in the first part of the chapter that these are attempts to re-imagine a post-crisis landscape in ways that, for some, will preserve the status quo (using, for example, market-oriented 'green economy' discourses) while for others quite significant changes in the patterns of production and consumption that have dominated the post-World War II period are envisaged. As such, these re-imaginings deserve attention because—thanks to the pervasive use of computer-aided scenario-building in recent times—images of the future do influence decisions that can shape these futures. However, the primary concern of this chapter is not just stories of the future, but also the kinds of real-economy conditions that could materially contribute to the possibility of a more sustainable and equitable future. In the second part of the chapter, it will be argued that rising resource prices have joined climate change and ecosystem services as a key landscape driver of change. After

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Boundary objects, HRM tools and change for sustainability

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Introduction

This chapter illustrates a novel approach to using boundary objects (BOs) as change agents. In particular, the chapter illustrates how tools from stages of the human resources management (HRM) process can be used as BOs in order to facilitate changes necessary to create and maintain more sustainable organisations. BOs, which are discussed in greater detail below, can translate, transfer and/or create knowledge across diverse boundaries or groups of stakeholders. In organisations, BOs can translate, transfer and/or create knowledge between and among functions, departments and other groups. This chapter illustrates how knowledge about sustainability can be translated, transferred and/or created between and among all organisational functions by using HRM tools as BOs. It builds on arguments made by other scholars (e.g. Jabbour and Santos 2008) that the HR function should be integrated with organisational sustainability by formulating HRM policies and practices that stimulate the social, economic and environmental strategies of the organisation. It also builds on earlier work analysing the role of BOs in generating and supporting organisational change (Oswick and Robertson 2009), and on the role of BOs in underpinning the formation of a community of practice around sustainability (Benn and Martin 2010).

HRM tools that can act as BOs include HRM practices and policies with respect to planning, recruiting, selection, orientation, training, evaluation and replacement. HR planning tools, and other HRM practices and policies that reflect an organisation's commitment to sustainability, can function as BOs to bridge the gap between traditional HR strategy and sustainability strategy in organisations. The chapter finds that the use of HRM tools as BOs needs to be integrated throughout the HRM process, and also needs to be carefully considered in terms of the capacity to impede or support an integrated approach to sustainability in organisations.

First, the challenges of implementing sustainability in organisations are explored as examples of boundary problems. Next, we provide a detailed definition and characteristics of BOs. We illustrate how organisations can use HRM tools as BOs in order to facilitate change and create and maintain sustainability—including environmental, social and economic/financial sustainability—across all organisational functions. Practical examples of how organisations are using HRM tools as BOs to pursue or enhance sustainability are also included. Lastly, critical perspectives and future research directions are discussed.

Sustainability challenges as boundary problems

At the business level, the Brundtland definition of sustainability can be interpreted as: 'meeting the needs of a firm's direct and indirect stakeholders (such as shareholders, employees, customers, suppliers, pressure groups, communities etc) without compromising its ability to meet the needs of future stakeholders as well' (Dyllick and Hockerts 2002: 131). Hart and Milstein (2003: 66) describe a sustainable company as one that 'produces concurrently economical, social and environmental benefits—known as the three pillars of sustainability'. Correspondingly, some researchers refer to these three pillars or dimensions of sustainability as 'the triple bottom-line' (e.g. Elkington 1997). Examples of environmental sustainability include efforts to conserve, reuse and regenerate resources in order to ensure that future generations have access to the natural resources they require. Examples of social sustainability include efforts to promote equity, diversity and social justice across and between communities and nations. Examples of economic/financial sustainability include efforts to promote long-term survival of the organisation and stakeholders, while reducing poverty and promoting fair trade. Organisational applications of these sustainability dimensions will be discussed in later sections.

While sustainability is a holistic concept, its implementation as such is highly challenging. There are temporal, spatial and, for the purpose of this chapter, knowledge-based boundary issues to consider. The three 'pillars' are each associated with specific sets of knowledge. Bringing about change that enables sustainability to be implemented in organisations requires integrating across multiple knowledge boundaries, and between and among many and diverse stakeholders with respect

to the three dimensions or types of sustainability—environmental, social and economic/financial. It requires bringing together scientific or technical experts with managers and employees from across the organisation, and hence, a wide range of disciplinary and functional backgrounds and their knowledge bases. The development of successful sustainable products, for example, requires high-level marketing and raw material scale-up innovations, as well as product redesign according to sustainability principles and standards, which may have very specific technical requirements (Nidumolu *et al.* 2009). Advancing sustainability performance is a matter of addressing the systemic and holistic nature of sustainability knowledge, and of recognising, for instance, the interconnectedness and complexity of sources of environmental impact and their relationships to social and economic concerns of the organisation (Porter 2008).

Addressing this complexity and working towards implementing sustainability means collaborating with a range of other organisations that may have very different understandings of the importance or applicability of sustainability. For example, raising awareness and developing such knowledge may require corporations to form partnerships with long-time adversaries such as advocacy-based environmental organisations (Jamali and Keshishian 2009; Seitandi and Crane 2009). Employees may need to work with ‘partners’ from different professional, occupational or social backgrounds that represent organisations or organisational groups or teams with very different priorities and sources of power. Developing a shared understanding of what sustainability might mean between/among organisations and their supply chain partners, and/or other business alliances and networks, becomes difficult because of these multiple priorities and contextual understandings of sustainability (Selsky and Parker 2005). The challenges described above, all of which arise as a result of working across multiple and diverse boundaries, are known as boundary problems.

As illustrated above, boundary problems beset the theory and practice of corporate sustainability, and sustainability constraints can be conceived of as occurring at boundaries (Ny *et al.* 2006). Boundaries are constructed by value judgements; they are temporal, spatial and both intra- and inter-organisational. Boundary problems have the potential to interfere with the key principles that are widely acknowledged as underpinning the integration of sustainability into business practices. These principles include the creation, translation and integration—throughout the organisation—of shared understandings, meanings and knowledge around the relatively malleable concept of sustainability. Issues of group identity can impinge on developing an integrated sense of sustainability across an organisation. For example, Angus-Leppan *et al.* (2009) found different stakeholder groups within a major bank had very different interpretations of the bank’s corporate social responsibility (CSR) and sustainability messages, and of their importance.

The resolution to boundary problems is not just a matter of working across different knowledge boundaries, since issues of sustainability are complex concepts, open to multiple interpretations by multiple stakeholders (Basu and Palazzo 2008; Angus-Leppan *et al.* 2010). Hence, the challenge of integrating sustainability involves developing meaning around sustainability that is holistic, that brings

together understandings from the natural and technical sciences into management thinking, that can be shared across functional and disciplinary boundaries, and that considers all levels of systems thinking (Benn and Martin 2010). Essentially, firms need to establish a community of practice centred on sustainability-related knowledge across the organisation, and the competitiveness of the firm will depend on the extent to which differences in sustainability practice can be coordinated (Brown and Duguid 2001). Traditional approaches to either incremental or transformational change in the extant literature do not adequately recognise or address this key problem (Dunphy *et al.* 2007; Benn and Baker 2009). In this chapter, we argue that BOs in the form of HRM tools can meet this challenge, as is further discussed in sections below.

Characteristics of BOs

In the literature, the term used for objects that can travel across knowledge and meaning-related boundaries is ‘boundary object’. Star and Griesemer (1989) first introduced the concept of BOs as a means by which co-operation and managing diversity could be facilitated across a heterogeneous group of scientists. They defined BOs as conceptual tools:

... which both inhabit several intersecting worlds and satisfy the informational requirements of each of them. Boundary objects are objects which are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become more strongly structured in individual use. These objects may be abstract or concrete. They have different meanings in different social worlds but their structure is common enough to more than one world to make them recognisable means of translation. The creation and management of boundary objects is key in developing and maintaining coherence across intersecting social worlds (Star and Griesemer 1989: 343).

BOs can be artefacts in the form of made things, such as tools or visual representations, or discourses, terms, concepts, processes or technologies (Star and Griesemer 1989; Wenger 1999). Reports, standardised forms and methods, protocols, models, repositories, maps of interdependencies such as Gantt charts, all help actors differentiate their knowledge domain, but also have the capacity to help them share or collaborate to solve problems and develop new knowledge (Star 1989). In the different domains, specialised knowledge can be built utilising the BO. Yet the BO is plastic enough for the separate domains to share some commonalities. In this way, BOs have a role in initiating and supporting change that involves actors from different social roles or disciplinary areas. Specifically, they have a role in sharing and transforming knowledge and changing practices across social, occupational and professional boundaries, such as across the different interests and knowledge backgrounds of members of a community of practice (Wenger 1999; Carlile 2002, 2004).

BOs enable discrepant arrays of knowledge and meaning to be shared and transformed across such boundaries because they act as 'empty vessels that are filled differently by whatever is the local beverage' (Sapsed and Salter 2004: 1519). We should point out that a BO is not the same as organisational culture, which may be represented through certain artefacts, but is an artefact that specifically provides a means of sharing and transforming knowledge across various types of boundaries.

This chapter builds on earlier work analysing the role of BOs in generating and supporting organisational change (Oswick and Robertson 2009). In particular, our contribution focuses on using BOs in the HR function, and throughout the HRM process, to span knowledge- and meaning-related boundaries that exist as organisations pursue or enhance a commitment to sustainability. As Soliman and Spooner (2000) point out, HRM is essentially a knowledge-management function and HR managers need to be able to manage knowledge transfers across multiple areas of the organisation.

BOs may be structural, symbolic or visionary, or have combinations of these properties. In organisations, records such as employee payroll records and a wide range of other records concerning outcomes, products and targets are examples of structural BOs. Structural BOs also include policies and practices such as planning and evaluating, and the corresponding tools used to plan and evaluate. Structural BOs have been most studied, with a particular research emphasis on the relative usefulness of different degrees of structure.

Symbolic BOs, such as metaphors, are also referred to in the literature and are useful in the context of developing shared meaning around ambiguous or complex terms (e.g. Thompson 2005). Koskinen (2005) found that metaphoric BOs can play an important role in knowledge co-ordination and sharing of innovation processes in an organisation. The visionary boundary object is a conceptual object that prompts emotive responses from a range of people and is regarded as so sacred that it is difficult to argue against (such as 'world's best practice'; Briers and Chua 2001; Benn and Martin 2010). As with other BOs, the visionary object must be able to be tailored into specific settings. It must have a 'hard' core and a 'soft' or 'plastic' periphery that allows for different interpretations to be constructed by different constituencies within their specialised knowledge bases.

Carlile (2004) has listed characteristics of BOs to include shared language, specification and transformation. That is, they can be understood by a range of actors, they are specific to a certain task and they generate change. Hence, BOs can address boundary problems by bridging learning boundaries that distinguish the different practices of different inter- and intra-organisational groups (Scarborough *et al.* 2004).

Standardisation has always been regarded as a characteristic of BOs. Lutters and Ackerman (2007) found that loose routinisation, punctuated crystallisation and meta-negotiation streams are central properties of BOs. Essentially, these findings mean that BOs can be in a state of continual modification; they are relevant and utilised at particular points of time, but as an aspect of an ongoing process and set of interrelationships. Since BOs can be in a state of continual modification, they are appropriate tools to facilitate organisational change.

HR, BOs and sustainability

So how can the HR function of the organisation—which is often charged with the processes of change—facilitate more sustainable organisations, which includes addressing the corresponding issue of boundary problems across the organisation? In this section of the chapter, we examine how HRM policies and practices, acting as BOs (as we have described them above—structural, symbolic or visionary concepts), can help to unite and transform disparate organisational functions and stakeholders around a shared concept of sustainability; and thus, resolve boundary problems and create more sustainable organisations.

In the literature there is a fairly long history of contributions that view the HR function as a locus for organisational change. For example, Storey (1992) and Sherriton and Stern (1997) believed that HR can and should play a major role in implementing change. Caldwell (2001) held that HR managers should be at the forefront of organisational change initiatives. In 1997, Ulrich suggested compatibility between HRM and change-oriented HR roles.

HRM tools as BOs

HRM tools can play the role of BOs, as they (BOs) are defined above. As BOs, HRM tools can create and share meaning, knowledge and practices that can be integrated throughout the organisation. Specific HRM tools that can act as BOs include employee record and report keeping, policies and practices such as diversity policies, and other sources and examples of formalisation and standardisation. Additional HRM tools that can act as BOs include job planning and descriptions, criteria for recruiting, selection and evaluation, and training programmes. These HRM tools can bridge the gap between traditional HR strategy and sustainability strategy in organisations.

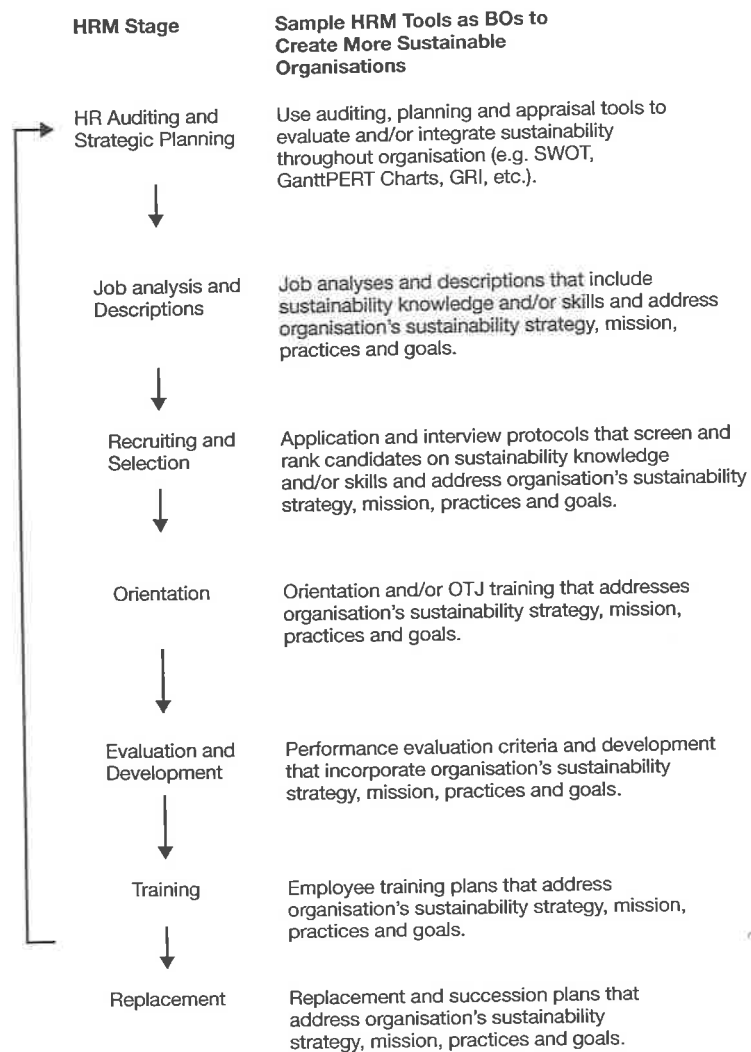
In both textbooks and the academic literature, HRM in organisations is often addressed as a series of stages or processes, including: HR auditing and strategic planning; job analysis/descriptions; recruiting; selection; orientation; evaluation and development; training; and replacement (e.g. Jabbour and Santos 2008; Ivancevich 2009). Correspondingly, each stage is characterised by specific tools, processes and/or practices. These tools, processes and practices can act as BOs to create a set of shared meanings and practices that are integrated between and among the many and diverse functions and members of the organisation.

For example, at the HR auditing and strategic planning stages, auditing and planning tools such as SWOT analysis and PERT charts are knowledge-management tools that can be used to analyse the current situation and future needs, and to develop a strategic plan for HR that can be accessed and built upon separately by different groups across the organisation. This strategic plan is then integrated throughout the organisation in the form of other HRM tools such as job descriptions and criteria for recruiting, selection, orientation, evaluation, training and

replacement. Hence, these HRM tools play the role of BOs by creating and sharing meaning, knowledge and practices that are integrated throughout the organisation.

Likewise, tools at each of the HRM stages can be used as BOs to create and share meaning, knowledge and practices in order to create more sustainable organisations, as is illustrated in Figure 9.1. In the next section, we explore how BOs in the form of HRM practices and policies can facilitate the changes necessary for implementation of sustainability across the organisation.

Figure 9.1: Using HRM tools as boundary objects to create more sustainable organisations



HRM tools, BOs and environmental sustainability

As discussed earlier, environmental sustainability includes efforts to reduce and reuse resources. Previous empirical work has indicated that HRM practices are critical factors in implementing environmental management schemes in organisations (Wee and Quazi 2005; Sammalisto and Brorson 2008) and in encouraging environmental innovations (Ramus 2002). The specific operations of HRM tools as BOs can explain these general findings.

At the HR auditing and strategic planning stages, tools such as SWOT analysis and/or Global Reporting Initiative (GRI) criteria for sustainability reporting can be used as BOs to analyse the organisation's current status with respect to environmentally sustainable practices (e.g. reusing resources and reducing consumption), and to develop plans for the future. Acting as BOs, these tools can span the diverse functions, such as the accounting, finance and engineering or environmental divisions, within the organisation, and co-ordinate different perspectives around sustainability planning and strategy.

BOs such as HR audit and strategic planning tools that focus on co-ordinating sustainability across the organisation can lay the groundwork for additional HRM tools to act as BOs in diffusing sustainability throughout the organisation. For example, job analyses and descriptions can act as BOs to co-ordinate sustainability across different organisational functions. In keeping with Star and Griesemer's (1989) definition (cited above) of BOs, the job analyses and descriptions must be both universal across multiple functions and malleable within specific functions. For example, a BO in the form of an organisation-wide policy to include responsibility for conserving resources in job analyses and descriptions can be subsequently custom-tailored for each individual job acting as a form of knowledge development within each function. Hence, BOs must be malleable and must function at multiple levels—including organisation and function/department levels—in order to create more sustainable organisations.

Likewise, recruiting and selection tools can act as BOs in the form of organisation-wide recruiting and selection protocols and criteria that demand candidates' knowledge of and/or experience with environmentally sustainable practices consistent with the organisation's environmental sustainability plans, mission and goals. However, each function or department can customise these BOs by developing specific definitions and measures for the type of knowledge and experience that is appropriate for their particular mission, within the context of the larger organisation.

Organisation-wide orientation and training programmes and tools can act as BOs to facilitate more sustainable organisations by including information on environmental sustainability that is consistent with the organisation's environmental sustainability plans, mission and goals. Each function or department can customise these BOs by developing supplementary training that is appropriate for their function within the context of the larger organisation.

Likewise, evaluation and promotion criteria can act as BOs to diffuse sustainability throughout the organisation by including employee contributions to the organisation's environmental sustainability plans, mission and goals. Individual

functions and departments can custom-tailor these organisation-wide BOs to fit their mission in a way that is also consistent with the larger organisational mission.

The same goes for organisation-wide replacement and succession plans. Organisation-wide criteria that address environmental sustainability knowledge and expertise in replacement and succession can act as BOs to facilitate organisation-wide diffusion of environmental sustainability. Individual functions and departments can adapt these organisation-wide BOs to fit their specific missions, in a way that is consistent with the organisation level mission.

Hence, the tools and practices used in these stages in the HRM process, acting largely as structural BOs, can create, transfer, translate and/or integrate knowledge about how organisations can be more environmentally sustainable across organisational boundaries such as diverse knowledge bases and functions. The various protocols, records and plans may be interpreted differently according to the needs of the specific functions, stakeholder group or knowledge area within the organisation, but they act to align the different actors around some shared understanding or knowledge base concerning sustainability.

Of course, the HRM stages are not as linear as they are depicted in Figure 9.1. However, as is illustrated in Figure 9.1, the process is iterative, so that the cycle continues to loop back to HR auditing and strategic planning, which evaluates the present situation, and uses that information to plan for the future. Likewise, the arrows between HRM stages in Figure 9.1 illustrate how each successive stage facilitates the next stage and, correspondingly, how BOs at each stage can facilitate sustainability at current and successive stages.

HRM tools, BOs and social sustainability

As discussed earlier, social sustainability includes efforts to promote equity, diversity and social justice. Some researchers (e.g. Pfeffer 2010) observe that social sustainability is addressed less frequently in organisations than environmental and economic/financial sustainability and, when addressed, the focus is often external stakeholders rather than employees. HRM is uniquely positioned to facilitate social sustainability within organisations through its responsibility for recruiting, training, developing, evaluating and retaining employees. Therefore, with respect to HRM, a good example of a BO that can facilitate social sustainability throughout the organisation is a diversity policy. Jabbour and Santos' (2008) summary of the literature, including several empirical studies, finds that diversity management can add value to the organisation with respect to enhancing sustainability. We suggest the reason is because a diversity policy can promote equity and diversity by attracting and retaining a qualified set of employees from diverse backgrounds, and because it acts both as a visionary and as a structural boundary object.

A diversity policy begins as part of the HR strategic plan, which can be integrated throughout the organisation via BOs in later HRM stages. In effect, it can then act as a job classification scheme, accessible to a wide range of employees but with a hard core of meaning around a job description. For example, job descriptions,

and recruiting and selection criteria, can act as BOs to facilitate attraction of a diverse employee population. Retention of a diverse employee population can be facilitated through BOs such as orientation, training and development programmes. In addition, diversity policies can facilitate attraction and retention of a diverse employee population through BOs such as organisation-wide zero tolerance policies, and policies prohibiting hostile, predatory or otherwise negative work environments.

Some researchers (e.g. Pfeffer 2010) argue that social sustainability in the workplace also includes issues such as organisation-wide transparency, ethical treatment of all employees and respect for all employees. Under these circumstances, BOs to facilitate social sustainability in organisations would include policies on transparency, ethics and mutual respect, which can be included as part of the HR strategic plan.

HRM tools, BOs and economic/financial sustainability

As discussed earlier, economic or financial sustainability includes efforts to promote long-term survival of the organisation and stakeholders, while reducing poverty and promoting fair trade. While we deal with each of the 'three pillars' of sustainability separately in this paper in order to highlight the potential role of specific HRM tools as structural boundary objects, we stress that a key function of BOs in an organisational or inter-organisational context can be to bring together the three separate elements of sustainability in a holistic approach. Previous work has explored the role of visionary BOs in performing this role (Benn and Martin 2010).

HRM tools that act as BOs can promote synergies between and among the three types of sustainability and how they are manifested in organisations. Boudreau and Ramstad (2005) have linked the HRM function to environmentally, socially and financially sustainable outcomes, arguing that strategic success for the organisation is dependent upon a long-term perspective that allows for an emphasis on human capital, as well as on environmental and financial responsibility. Our exploration of BOs supports this claim. For example, developing protocols around environmentally sustainable practices, such as reusing resources or reducing resource usage, can have the effect of decreasing costs, which is also economically/financially sustainable (e.g. Rusinko 2007).

BOs in the form of diversity policies, which promote social sustainability, also help to promote the long-term economic survival of the organisation, since they facilitate attracting and retaining the best and brightest employees from all backgrounds, which can foster speed and innovation (Shena *et al.* 2009). Similarly, BOs that facilitate environmental and/or social sustainability at HRM stages—including job descriptions, recruiting and selection criteria, orientation and training programmes, and evaluation and replacement plans—can also act as BOs to facilitate economic/financial sustainability, since environmental and/or social outcomes can also facilitate the long-run financial survival of the organisation.

HRM, BOs and sustainability: examples in practice

While the concept of using HRM tools as BOs to facilitate sustainability in organisations is new and under-researched in the literature, there are a few examples of organisations that are using the HR function as a major player in integrating sustainability into their strategic plans, and, although their initiatives are not stated as such, they may be interpreted as examples of using HRM tools as BOs in order to facilitate sustainability throughout their organisations. In effect, the HR functions of their organisations are providing an 'infrastructure' of BOs to bring about change, as suggested by Oswick and Robertson (2009). According to Lutters and Ackerman (2007), BOs in the form of HRM tools operate at specific points of time, but as an aspect of the ongoing HRM process, and are embedded in a historical set of interrelationships.

For example, Casler and colleagues' (2010) report on the Sierra Nevada Brewing Company (SNBC), which was founded in 1980 and has always valued environmental, social and economic/financial sustainability, found that SNBC aligns its HR practices with an emphasis on environmental sustainability. This approach to HR results in environmentally sustainable initiatives that also decrease costs and, therefore, positively impact economic/financial sustainability. One of the ways that SNBC addresses social sustainability is through a standardised employee benefits package that focuses on protocols for healthy employees. For instance, the company offers a comprehensive wellness programme, including on-site healthcare for employees and dependents, and massage therapy and on-site childcare. Interpreted variously across the organisation, these protocols and standards assist in building new knowledge around employee health and wellbeing. As these tools are dealing with more explicit knowledge about employee health, they are relatively strongly structured.

Likewise, SNBC has integrated sustainability into its HR strategic planning process, and into each of its HRM stages, with the end result of disseminating sustainability throughout the organisation. Hence, while it may not realise it or acknowledge it at this time, SNBC is an example of a company that is using HR tools as BOs in order to create and maintain a sustainable organisation. For example, SNBC created two positions with the title of sustainability co-ordinator. Their new employee orientation process, which includes the sustainability co-ordinators as instructors, emphasises the sustainability values that define the company—effectively providing a visionary BO with which the employees from across the organisation can identify and learn to apply in their own work context. With respect to selection and retention, SNBC values employee fit with sustainability values as equally important or more important than employee–job fit. SNBC encourages employee feedback and suggestions with respect to sustainability practices and policies. It focuses on hiring and promoting from within the company to maintain its culture of sustainability.

Wirtenberg *et al.* (2007) surveyed a convenience sample of firms from the Global 100 Most Sustainable Corporations in the World, and found that HR played a major role in integrating sustainability in those companies. The HR function helped to integrate sustainability into strategic planning, and also used traditional HRM tools, such as recruiting, training, development programmes and policies (including diversity policies), to integrate sustainability throughout these organisations and across various communities of practice. Therefore, the firms in this study can also be viewed as examples of organisations that are using HRM tools as BOs to create and maintain sustainable organisations.

In another example, Benn *et al.* (2011) describe the organisational change processes that underpin the sustainability successes of Fuji Xerox Australia Eco-Manufacturing Centre in Sydney. This centre now accounts for 80% of Fuji Xerox Australia's spare parts requirements—these parts would otherwise have gone to landfill. The success of the centre rests on both technological advances and a high performance workplace culture. Both these aspects of its success are based in the innovative capacity of a highly interdisciplinary team, fostered by deployment of BOs as a means of engaging employees in the ecological agenda. For example, as a visionary BO (Briers and Chua 2001), 'world's best practice' is translated at this Fuji Xerox plant into 'world's best practice in eco-manufacturing', widely recognised as such within the global Fuji Xerox organisation and the sector as a whole.

HR tools have been instrumental in developing the capacity upon which the perceived legitimacy of this visionary BO rests. For example, the firm has differentiated between recycling and remanufacturing with carefully specified HR management strategies defining the appropriate skills and capabilities that need to be allocated to these different technologies. The company is currently focused on challenges such as how to accommodate cultural differences in the distribution and levels of skill in other countries where manufacturing occurs and how to transfer the cultural change processes deployed in Sydney to build employee commitment, engagement and multi-skilling (Benn *et al.* 2011). Further research could explore the role that BOs in the form of HR tools could play in addressing these challenges.

Turning a strategic priority into practical initiatives saw another Australian organisation, the water utility Yarra Valley Water (YVW), engage in organisational learning around sustainability. First, supported by The Natural Step, the management team at YVW then decided they needed more practical and strategic direction setting and embarked on the widespread implementation of life-cycle analysis (LCA) (Crittenden *et al.* 2011). Acting as a structural BO, the LCA enabled the economists, accountants and engineers to each build their own disciplinary, quantitative understanding of what reducing environmental impact might mean.

We suggest that the reason the LCA has been so successful in supporting the sustainability implementation programme at YVW¹ is that it was incorporated into the organisation's HR systems. The HR manager utilised the LCA as a BO tool to motivate wider employee engagement and to foster recognition of the sustainability impacts

¹ Yarra Valley Water has been awarded a number of sustainability-linked awards and prizes.

in social, environmental and economic dimensions. LCA was deployed in the Orientation HRM phase (Fig. 9.1), figuratively displayed as the 'YVW Sustainability Roadmap' which featured in murals and on PC screensavers across the organisation. It became an aspect of the Evaluation and Development and Training phases of HRM (Fig. 9.1), incorporated into the reward and recognition system of YVW, and operationalised into a range of job descriptions and training programmes. Effectively bringing the YVW organisation together as a community of practice, the LCA BO supported the development of a shared understanding and a strategic perspective across organisational functions of what sustainability might mean for the organisation as a whole. Hence, the LCA enabled the triple bottom-line to become individually meaningful to the range of internal and external stakeholders.

The above examples illustrate how BOs can function as change agents by creating and sharing new knowledge and practices across diverse functions in organisations. Likewise, these examples illustrate how BOs, functioning as change agents, create more sustainable organisations by integrating and/or expanding sustainability and sustainable practices in organisations.

Critical perspectives

When criticisms are levelled at BOs, they are typically levelled in three areas: power; calcification; and lack of critique/reflection. A number of writers argue that BOs have a performative power, altering the relationships of what is represented and favouring some aspects above others (e.g. Iedema 2003; Oswick and Robertson 2009), hence enhancing certain power distributions. Researchers and practitioners need to be aware of this potential when recommending or using BOs (Carlile 2004).

BOs may also 'calcify' as standards and thus become a barrier to change. Another related problem is that BOs may have a stultifying effect on change by maintaining control over tasks and limiting innovation (Oswick and Robertson 2009). With respect to HRM tools, we argue that standardised policies, criteria and programmes may be effective BOs to diffuse sustainability throughout the organisation. To guard against possible calcification or stultification as a result of using these types of structural BOs, metaphoric BOs could be introduced as a means of generating new understandings across organisations and their partners, suppliers and other stakeholders (Koskinen 2005). For example, a sustainability 'roadmap' which defines the sustainability vision and the steps needed to get there can help members of cross-functional teams with different knowledge backgrounds to develop a shared way to approach a sustainability change programme. Organic metaphors that badge the organisation as 'living cell' or 'ecosystem' can also help guide individuals towards a common, but evolving, focus on sustainability.

As is often the case with change agents, a potential problem with BOs is without critique or reflection. However, this problem, as well as the problems with power, calcification and lack of critique/reflection, can be mitigated if BOs are used

Future directions

Sustainability is a highly diffuse concept, whose meaning can be differently interpreted by a range of interest groups and vested interests within organisations. Trade-offs are made between and among the different elements of sustainability depending on the power and influence of various stakeholders and such interests (Angus-Leppan *et al.* 2010). Future research can explore how BOs are deployed by different sources of power, and to what ends, in terms of a holistic approach to sustainability. In addition, future research can also test whether deploying BOs within the context of change models that are rooted in collaboration, learning and reflection can result in a more holistic and collaborative approach to sustainability in organisations.

Conclusion

This chapter has demonstrated a novel approach to using HRM tools as BOs in order to translate, transfer and/or create knowledge across diverse functions for the purpose of creating and maintaining more sustainable organisations, thus addressing the boundary problems that have impeded the integration of sustainability. Practical examples specifically addressed environmental, social and economic/financial sustainability in organisations. In addition, organisational examples demonstrated how BOs in the form of HRM tools are also change agents, as they translate, transfer and/or create knowledge about sustainability throughout the organisation, and facilitate organisations' paths to sustainability. While we recognise that use of HRM tools as BOs has potential downsides, if carefully utilised as an aspect of an HRM programme that is reflective and participative, they have great potential to not only bring different aspects of the organisation to share sustainability understandings, but to bring new knowledge together into a more holistic integration of sustainability. More generally, the chapter illustrates how the HR function of the organisation can be leveraged to contribute to the change processes needed to implement sustainability.

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